BEFORE THE TENNESSEE PUBLIC UTILITY COMMISSION
NASHVILLE, TENNESSEE

IN RE:

ATMOS ENERGY CORPORATION	**)**	
SHARED SERVICE DEPRECIATION	**)**	**Docket No. 20-00012**
STUDY	**)**	

DIRECT TESTIMONY OF DANE A. WATSON
ON BEHALF OF ATMOS ENERGY CORPORATION

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dane A. Watson, and my business address is 101 East Park Boulevard, Suite 220, Plano, Texas 75074. I am a Partner of Alliance Consulting Group ("Alliance"). Alliance Consulting Group provides consulting and expert services to the utility industry.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I hold a Bachelor of Science degree in Electrical Engineering from the University of Arkansas at Fayetteville and a Master's Degree in Business Administration from Amberton University.

Q. DO YOU HOLD ANY SPECIAL CERTIFICATION AS A DEPRECIATION EXPERT?

A. Yes. The Society of Depreciation Professionals ("the Society") has established national standards for depreciation professionals. The Society administers an examination and has certain required qualifications to become certified in this field. I

met all requirements and have become a Certified Depreciation Professional ("CDP").

Q. PLEASE OUTLINE YOUR EXPERIENCE IN THE FIELD OF DEPRECIATION.

A. Since graduation from college in 1985, I have worked in the area of depreciation and valuation. I founded Alliance Consulting Group in 2004 and am responsible for conducting depreciation, valuation and certain accounting-related studies for utilities in various industries. My duties relate to preparing depreciation studies and include (1) assembling and analyzing historical and simulated data, (2) conducting field reviews, (3) determining service life and net salvage estimates, (4) calculating annual depreciation, (5) presenting recommended depreciation rates to utility management for its consideration, and (6) supporting such rates before regulatory bodies.

My prior employment from 1985 to 2004 was with Texas Utilities ("TXU"). During my tenure with TXU, I was responsible for, among other things, conducting valuation and depreciation studies for the domestic TXU companies. During that time, I served as Manager of Property Accounting Services and Records Management in addition to my depreciation responsibilities.

I have twice been Chair of the Edison Electric Institute ("EEI") Property Accounting and Valuation Committee and have been Chairman of EEI's Depreciation and Economic Issues Subcommittee. I am a Registered Professional Engineer ("PE") in the State of Texas and a Certified Depreciation Professional. I am a Senior Member of the Institute of Electrical and Electronics Engineers ("IEEE") and have held numerous offices on the Executive Board of the Dallas Section of IEEE as well

as national and world-wide offices. I am also twice Past President of the Society of Depreciation Professionals.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY REGULATORY COMMISSIONS?

A. Yes. I have testified before numerous state and federal agencies in my 30 year career in performing depreciation studies. I have conducted depreciation studies, filed written testimony and/or testified before the Commissions provided in Exhibit DAW-1.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE TENNESSEE PUBLIC UTILITY COMMISSION?

A. I submitted Direct Testimony in Docket No. 14-00146 before the Tennessee Regulatory Authority (the "Authority"). Additionally, depreciation studies where I have had responsibility for oversight have been submitted and approved by the Authority in previous dockets. Ms. Rhonda Watts from Alliance submitted and testified to a study reviewed by me on behalf of Chattanooga Gas Company in Docket No. 09-00183. Ms. Watts also submitted a study reviewed by me on behalf of Piedmont Gas Company in Docket No. 11-00144.

II. PURPOSE OF DIRECT TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS PROCEEDING?

A. I sponsor and support the depreciation study performed by Atmos Energy ("Atmos Energy" or the "Company") for Atmos Energy Corporation's Shared Services Unit ("Shared Services" or "SSU").

Q. ARE YOU SPONSORING ANY EXHIBITS IN THIS PROCEEDING?

A. Yes. I am sponsoring the following exhibits:

- DAW-1 – List of Regulatory Appearances
- DAW-2 – Atmos Energy Corporation Shared Services Unit Depreciation Rate Study at September 30, 2019

Q. WERE THESE EXHIBITS PREPARED BY YOU OR UNDER YOUR SUPERVISION AND CONTROL?

A. Yes.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.

A. The Atmos Energy SSU depreciation study and analysis that I have performed supports establishing depreciation rates at the level recommended in my testimony. The SSU depreciation rate study is attached as Exhibit DAW-2 and reflects a proposed unallocated annual depreciation expense of $25.5 million.

Q. DOES THE DEPRECIATION STUDY YOU SPONSOR REFLECT THE MOST CURRENT DATA AVAILABLE FOR THE ASSETS ANALYZED?

A. Yes. The data used reflects the most recent experience and future expectations for life and net salvage characteristics for assets in Atmos Energy's Shared Services as of September 30, 2019.

III. SHARED SERVICES UNIT DEPRECIATION STUDY

Q. DID ALLIANCE PREPARE A 2019 DEPRECIATION STUDY FOR ATMOS ENERGY SHARED SERVICES?

A. Yes. We have conducted a study as of September 30, 2019. The study recommendations and results are attached to my direct testimony as Exhibit DAW-2.

Q. PLEASE DESCRIBE YOUR DEPRECIATION STUDY APPROACH.

A. I conducted the depreciation study in four phases as shown in my Exhibit DAW-2. The four phases are: Data Collection, Analysis, Evaluation, and Calculation. During the initial phase of the study, I collected historical data to be used in the analysis. After the data was assembled, I performed analyses to determine the life and net salvage percentage for the different property groups being studied. As part of this process, I conferred with personnel, and managers responsible for the installation, operation, and removal of the assets to gain their input into the operation, maintenance, and salvage of the assets. The information obtained from Company personnel, combined with the study results, was then evaluated to determine how the results of the historical asset activity analysis, in conjunction with the Company's expected future plans should be applied. Using all of these resources, I then calculated the depreciation rate for each function.

Q. WHAT PROPERTY IS INCLUDED IN THE SHARED SERVICES UNIT DEPRECIATION STUDY?

A. For Shared Services, there is one general class of depreciable property which is related to general office activities. These assets include office buildings and leasehold improvements, office furniture, communications equipment, transportation equipment, computer software and hardware and other miscellaneous general office assets. The top three largest investments in SSU are the application software, structures and improvements, and server hardware These assets are primarily located in the Company's home office in Dallas, Texas and the customer service centers in

Amarillo, Texas and Waco, Texas. The depreciation expense for SSU is allocated to each Atmos Energy entity it supports.

Q. WHAT DEPRECIATION METHODOLOGY DID YOU USE FOR SHARED SERVICES PROPERTY?

A. The straight-line (method), Equal Life Group ("ELG") (procedure), and remaining-life (technique) depreciation system were employed to calculate annual and accrued depreciation. This methodology is consistent with the existing approved rates. The computations of the annual depreciation rates are shown in Appendix B of Exhibit DAW-2.

Q. WHAT FACTORS INFLUENCE THE DEPRECIATION RATES FOR AN ACCOUNT?

A. The primary factors that influence the depreciation rate for an account are: (1) the remaining investment to be recovered in the account, (2) the depreciable life of the account, and (3) the net salvage for the account.

Q. WHAT METHOD DID YOU USE TO ANALYZE HISTORICAL DATA TO DETERMINE LIFE CHARACTERISTICS?

A. Accounts were analyzed using the retirement rate method (actuarial method) to estimate the life of property. In much the same manner as human mortality is analyzed by actuaries, depreciation analysts use models of property mortality characteristics that have been validated in research and empirical applications. Further detail is found in the life analysis section of Exhibit DAW-2.

Q. HOW DID YOU DETERMINE THE AVERAGE SERVICE LIVES FOR EACH ASSET GROUP?

A. The establishment of appropriate average service lives for each account was determined by using the Actuarial. Graphs illustrating the chosen Iowa Curves used to determine the average service lives for analyzed accounts are found in the Life Analysis section of Exhibit DAW-2. A summary of the depreciable life for each account is shown in Appendix C of Exhibit DAW-2.

Q. WHAT IS NET SALVAGE?

A. While discussed more fully in the study itself, net salvage is the difference between the gross salvage (what the asset was sold for) and the removal cost (cost to remove and dispose of the asset). Salvage and removal cost percentages are calculated by dividing the current cost of salvage or removal by the original installed cost of the asset. A more detailed description on net salvage is found in Exhibit DAW-2. A discussion on individual account net salvage parameters are found in the Net Salvage section of Exhibit DAW-2 as well as a summary of gross salvage, cost of removal and net salvage for each account can be found in Appendix C of Exhibit DAW-2. The net salvage analysis by account is provided in Appendix D of Exhibit DAW-2.

Q. WHAT ARE THE RESULTS OF THE ATMOS ENERGY SSU DEPRECIATION STUDY?

A. The 2019 Atmos Energy SSU Depreciation Study is found in Exhibit DAW-2. The proposed unallocated annual depreciation expense for Atmos Energy SSU is approximately $25.5 million per year. More details related to the study and results are found in Exhibit DAW-2.

Q. HAS THE COMPANY REQUESTED APPROVAL OF THE PROPOSED SHARED SERVICES DEPRECIATION RATES IN ANY OTHER STATES?

A. No. The Company has not yet formally requested approval of the SSU depreciation rates shown in DAW-2 in any other jurisdiction, although it has been filed in Virginia. Atmos Energy intends to file in each of its other jurisdictions as required under its various state regulatory requirements.

IV. CONCLUSION

Q. WHAT ACCOUNT DEPRECIATION RATES ARE YOU PROPOSING, AND HOW DO THEY COMPARE WITH THE CURRENT RATES?

A. The proposed rates for SSU are in Appendix A of Exhibit DAW-2. Detailed calculations of these rates are in Appendix B of this Exhibit.

Q. MR. WATSON, DO YOU HAVE ANY CONCLUDING REMARKS?

A. Yes. The depreciation study and analysis performed under my supervision fully support setting depreciation rates at the level I have indicated in my testimony. The Company should continue to periodically review the annual depreciation rates for its property. In this way, all customers are charged for their appropriate share of the capital expended for their benefit. The depreciation study for Atmos Energy's SSU depreciable property as of September 30, 2019 describes the extensive analysis performed and the resulting rates that are now appropriate for Company property. The Company's depreciation rates should be set at my recommended amounts in order to recover the Company's total investment in property over the estimated remaining life of the assets.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

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ATMOS ENERGY CORPORATION	)	
SHARED SERVICE DEPRECIATION	)	**Docket No. 2020-_____**
STUDY	)	

VERIFICATION

STATE OF TEXAS)

COUNTY OF COLLIN)

I, Dane A. Watson, being first duly sworn, state that I am a Partner of Alliance Consulting Group, that I am authorized to testify on behalf of Atmos Energy Corporation in the above referenced docket, that the Direct Testimony of Dane A. Watson in support of Atmos Energy Corporation's filing is true and correct to the best of my knowledge, information and belief.

Dane A. Watson

Dane A. Watson

Sworn and subscribed before me this 31st day of January, 2020.

Notary Public

My Commission Expires: September 17, 2023

JUAN F TISCARENO REYES
Notary Public
STATE OF TEXAS
ID#128386245
My Comm. Exp. Sept. 17, 2023

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Texas, New Mexico	Federal Energy Regulatory Commission	ER20-277-000	Southwestern Public Service Company	2019	Electric Production and General Plant Depreciation Study
Alaska	Regulatory Commission of Alaska	U-19-086	Alaska Electric Light and Power	2019	Electric Depreciation Study
Delaware	Delaware Public Service Commission	19-0615	Suez Water Delaware	2019	Water Depreciation Study
Texas	Public Utility Commission of Texas	49831	Southwestern Public Service Company	2019	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	19-00170-UT	Southwestern Public Service Company	2019	Electric Depreciation Study
Georgia	Georgia Public Service Commission	42516	Georgia Power Company	2019	Electric Depreciation Study
Georgia	Georgia Public Service Commission	42315	Atlanta Gas Light	2019	Gas Depreciation Study
Arizona	Arizona Corporation Commission	G-01551A-19-0055	Southwest Gas Corporation	2019	Gas Removal Cost Study
New Hampshire	New Hampshire Public Service Commission	DE 19-064	Liberty Utilities	2019	Electric Distribution and General
New Jersey	New Jersey Board of Public Utilities	GR19040486	Elizabethtown Natural Gas	2019	Gas Depreciation Study
Texas	Public Utility Commission of Texas	49421	CenterPoint Houston Electric LLC	2019	Electric Depreciation Study
North Carolina	North Carolina Utilities Commission	Docket No. G-9, Sub 743	Piedmont Natural Gas	2019	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-18-121	Municipal Power and Light City of Anchorage	2018	Electric Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Various	FERC	RP19-352-000	Sea Robin	2018	Gas Depreciation Study
Texas New Mexico	Federal Energy Regulatory Commission	ER19-404-000	Southwestern Public Service Company	2018	Electric Transmission Depreciation Study
California	Federal Energy Regulatory Commission	ER19-221-000	San Diego Gas and Electric	2018	Electric Transmission Depreciation Study
Kentucky	Kentucky Public Service Commission	2018-00281	Atmos Kentucky	2018	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-18-054	Matanuska Electric Coop	2018	Electric Generation Depreciation Study
California	California Public Utilities Commission	A17-10-007	San Diego Gas and Electric	2018	Electric and Gas Depreciation Study
Texas	Public Utility Commission of Texas	48401	Texas New Mexico Power	2018	Electric Depreciation Study
Nevada	Public Utility Commission of Nevada	18-05031	Southwest Gas	2018	Gas Depreciation Study
Texas	Public Utility Commission of Texas	48231	Oncor Electric Delivery	2018	Depreciation Rates
Texas	Public Utility Commission of Texas	48371	Entergy Texas	2018	Electric Depreciation Study
Kansas	Kansas Corporation Commission	18-KCPE-480-RTS	Kansas City Power and Light	2018	Electric Depreciation Study
Arkansas	Arkansas Public Service Commission	18-027-U	Liberty Pine Bluff Water	2018	Water Depreciation Study
Kentucky	Kentucky Public Service Commission	2017-00349	Atmos KY	2018	Gas Depreciation Rates

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Tennessee	Tennessee Public Utility Commission	18-00017	Chattanooga Gas	2018	Gas Depreciation Study
Texas	Railroad Commission of Texas	10679	Si Energy	2018	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-104	Anchorage Water and Wastewater	2017	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-18488	Michigan Gas Utilities Corporation	2017	Gas Depreciation Study
Texas	Railroad Commission of Texas	10669	CenterPoint South Texas	2017	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	17-061-U	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Kansas	Kansas Corporation Commission	18-EPDE-184-PRE	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Oklahoma	Oklahoma Corporation Commission	PUD 201700471	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Missouri	Missouri Public Service Commission	EO-2018-0092	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Michigan	Michigan Public Service Commission	U-18457	Upper Peninsula Power Company	2017	Electric Depreciation Study
Florida	Florida Public Service Commission	20170179-GU	Florida City Gas	2017	Gas Depreciation Study
Michigan	FERC	ER18-56-000	Consumers Energy	2017	Electric Depreciation Study
Missouri	Missouri Public Service Commission	GR-2018-0013	Liberty Utilities	2017	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18452	SEMCO	2017	Gas Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Texas	Public Utility Commission of Texas	47527	Southwestern Public Service Company	2017	Electric Production Depreciation Study
MultiState	FERC	ER17-1664	American Transmission Company	2017	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-008	Municipal Power and Light City of Anchorage	2017	Generating Unit Depreciation Study
Mississippi	Mississippi Public Service Commission	2017-UN-041	Atmos Energy	2017	Gas Depreciation Study
Texas	Public Utility Commission of Texas	46957	Oncor Electric Delivery	2017	Electric Depreciation Study
Oklahoma	Oklahoma Corporation Commission	PUD 201700078	CenterPoint Oklahoma	2017	Gas Depreciation Study
New York	FERC	ER17-1010-000	New York Power Authority	2017	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10580	Atmos Pipeline Texas	2017	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10567	CenterPoint Texas	2016	Gas Depreciation Study
MultiState	FERC	ER17-191-000	American Transmission Company	2016	Electric Depreciation Study
New Jersey	New Jersey Board of Public Utilities	GR16090826	Elizabethtown Natural Gas	2016	Gas Depreciation Study
North Carolina	North Carolina Utilities Commission	Docket G-9 Sub 77H	Piedmont Natural Gas	2016	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18195	Consumers Energy/DTE Electric	2016	Ludington Pumped Storage Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Alabama	FERC	ER16-2313-000	SEGCO	2016	Electric Depreciation Study
Alabama	FERC	ER16-2312-000	Alabama Power Company	2016	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-18127	Consumers Energy	2016	Natural Gas Depreciation Study
Mississippi	Mississippi Public Service Commission	2016 UN 267	Willmut Natural Gas	2016	Natural Gas Depreciation Study
Iowa	Iowa Utilities Board	RPU-2016-0003	Liberty-Iowa	2016	Natural Gas Depreciation Study
Illinois	Illinois Commerce Commission	GRM #16-208	Liberty-Illinois	2016	Natural Gas Depreciation Study
Kentucky	FERC	RP16-097-000	KOT	2016	Natural Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-16-067	Alaska Electric Light and Power	2016	Generating Unit Depreciation Study
Florida	Florida Public Service Commission	160170-EI	Gulf Power	2016	Electric Depreciation Study
California	California Public Utilities Commission	A 16-07-002	California American Water	2016	Water and Waste Water Depreciation Study
Arizona	Arizona Corporation Commission	G-01551A-16-0107	Southwest Gas	2016	Gas Depreciation Study
Texas	Public Utility Commission of Texas	45414	Sharyland	2016	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	16A-0231E	Public Service Company of Colorado	2016	Electric Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Multi-State NE US	FERC	16-453-000	Northeast Transmission Development, LLC	2015	Electric Depreciation Study
Arkansas	Arkansas Public Service Commission	15-098-U	CenterPoint Arkansas	2015	Gas Depreciation Study and Cost of Removal Study
New Mexico	New Mexico Public Regulation Commission	15-00296-UT	Southwestern Public Service Company	2015	Electric Depreciation Study
Atmos Energy Corporation	Tennessee Regulatory Authority	14-00146	Atmos Tennessee	2015	Natural Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00261-UT	Public Service Company of New Mexico	2015	Electric Depreciation Study
Hawaii	NA	NA	Hawaii American Water	2015	Water/Wastewater Depreciation Study
Kansas	Kansas Corporation Commission	16-ATMG-079-RTS	Atmos Kansas	2015	Gas Depreciation Study
Texas	Public Utility Commission of Texas	44704	Entergy Texas	2015	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-15-089	Fairbanks Water and Wastewater	2015	Water and Waste Water Depreciation Study
Arkansas	Arkansas Public Service Commission	15-031-U	Source Gas Arkansas	2015	Underground Storage Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00139-UT	Southwestern Public Service Company	2015	Electric Depreciation Study
Texas	Public Utility Commission of Texas	44746	Wind Energy Transmission Texas	2015	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	15-AL-0299G	Atmos Colorado	2015	Gas Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Arkansas	Arkansas Public Service Commission	15-011-U	Source Gas Arkansas	2015	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10432	CenterPoint- Texas Coast Division	2015	Gas Depreciation Study
Kansas	Kansas Corporation Commission	15-KCPE-116-RTS	Kansas City Power and Light	2015	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-120	Alaska Electric Light and Power	2014-2015	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43950	Cross Texas Transmission	2014	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	14-00332-UT	Public Service of New Mexico	2014	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43695	Xcel Energy	2014	Electric Depreciation Study
Multi State – SE US	FERC	RP15-101	Florida Gas Transmission	2014	Gas Transmission Depreciation Study
California	California Public Utilities Commission	A.14-07-006	Golden State Water	2014	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-17653	Consumers Energy Company	2014	Electric and Common Depreciation Study
Colorado	Public Utilities Commission of Colorado	14AL-0660E	Public Service of Colorado	2014	Electric Depreciation Study
Wisconsin	Wisconsin	05-DU-102	WE Energies	2014	Electric, Gas, Steam and Common Depreciation Studies

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Texas	Public Utility Commission of Texas	42469	Lone Star Transmission	2014	Electric Depreciation Study
Nebraska	Nebraska Public Service Commission	NG-0079	Source Gas Nebraska	2014	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-055	TDX North Slope Generating	2014	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-054	Sand Point Generating LLC	2014	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-045	Matanuska Electric Coop	2014	Electric Generation Depreciation Study
Texas, New Mexico	Public Utility Commission of Texas	42004	Southwestern Public Service Company	2013-2014	Electric Production, Transmission, Distribution and General Plant Depreciation Study
New Jersey	New Jersey Board of Public Utilities	GR13111137	South Jersey Gas	2013	Gas Depreciation Study
Various	FERC	RP14-247-000	Sea Robin	2013	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-078-U	Arkansas Oklahoma Gas	2013	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-079-U	Source Gas Arkansas	2013	Gas Depreciation Study
California	California Public Utilities Commission	Proceeding No.: A.13-11-003	Southern California Edison	2013	Electric Depreciation Study
North Carolina/South Carolina	FERC	ER13-1313	Progress Energy Carolina	2013	Electric Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Wisconsin	Public Service Commission of Wisconsin	4220-DU-108	Northern States Power Company - Wisconsin	2013	Electric, Gas and Common Transmission, Distribution and General
Texas	Public Utility Commission of Texas	41474	Sharyland	2013	Electric Depreciation Study
Kentucky	Kentucky Public Service Commission	2013-00148	Atmos Energy Corporation	2013	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	13-252	Allete Minnesota Power	2013	Electric Depreciation Study
New Hampshire	New Hampshire Public Service Commission	DE 13-063	Liberty Utilities	2013	Electric Distribution and General
Texas	Railroad Commission of Texas	10235	West Texas Gas	2013	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-12-154	Alaska Telephone Company	2012	Telecommunications Utility
New Mexico	New Mexico Public Regulation Commission	12-00350-UT	Southwestern Public Service Company	2012	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1269ST	Public Service Company of Colorado	2012	Gas and Steam Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1268G	Public Service Company of Colorado	2012	Gas and Steam Depreciation Study
Alaska	Regulatory Commission of Alaska	U-12-149	Municipal Power and Light City of Anchorage	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40824	Xcel Energy	2012	Electric Depreciation Study
South Carolina	Public Service Commission of South Carolina	Docket 2012-384-E	Progress Energy Carolina	2012	Electric Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Alaska	Regulatory Commission of Alaska	U-12-141	Interior Telephone Company	2012	Telecommunications Utility
Michigan	Michigan Public Service Commission	U-17104	Michigan Gas Utilities Corporation	2012	Gas Depreciation Study
North Carolina	North Carolina Utilities Commission	E-2 Sub 1025	Progress Energy Carolina	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40606	Wind Energy Transmission Texas	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40604	Cross Texas Transmission	2012	Electric Depreciation Study
Minnesota	Minnesota Public Utilities Commission	12-858	Northern States Power Company - Minnesota	2012	Electric, Gas and Common Transmission, Distribution and General
Texas	Railroad Commission of Texas	10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10174	Atmos West Texas	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10182	CenterPoint Beaumont/ East Texas	2012	Gas Depreciation Study
Kansas	Kansas Corporation Commission	12-KCPE-764-RTS	Kansas City Power and Light	2012	Electric Depreciation Study
Nevada	Public Utility Commission of Nevada	12-04005	Southwest Gas	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10147, 10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Kansas	Kansas Corporation Commission	12-ATMG-564-RTS	Atmos Kansas	2012	Gas Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Texas	Texas Public Utility Commission	40020	Lone Star Transmission	2012	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-16938	Consumers Energy Company	2011	Gas Depreciation Study
Colorado	Public Utilities Commission of Colorado	11AL-947E	Public Service of Colorado	2011	Electric Depreciation Study
Texas	Texas Public Utility Commission	39896	Entergy Texas	2011	Electric Depreciation Study
MultiState	FERC	ER12-212	American Transmission Company	2011	Electric Depreciation Study
California	California Public Utilities Commission	A1011015	Southern California Edison	2011	Electric Depreciation Study
Mississippi	Mississippi Public Service Commission	2011-UN-184	Atmos Energy	2011	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-16536	Consumers Energy Company	2011	Wind Depreciation Rate Study
Texas	Public Utility Commission of Texas	38929	Oncor	2011	Electric Depreciation Study
Texas	Railroad Commission of Texas	10038	CenterPoint South TX	2010	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-070	Inside Passage Electric Cooperative	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	36633	City Public Service of San Antonio	2010	Electric Depreciation Study
Texas	Texas Railroad Commission	10000	Atmos Pipeline Texas	2010	Gas Depreciation Study
Multi State – SE US	FERC	RP10-21-000	Florida Gas Transmission	2010	Gas Depreciation Study
Maine/ New Hampshire	FERC	10-896	Granite State Gas Transmission	2010	Gas Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Texas	Public Utility Commission of Texas	38480	Texas New Mexico Power	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38339	CenterPoint Electric	2010	Electric Depreciation Study
Texas	Texas Railroad Commission	10041	Atmos Amarillo	2010	Gas Depreciation Study
Georgia	Georgia Public Service Commission	31647	Atlanta Gas Light	2010	Gas Depreciation Study
Texas	Public Utility Commission of Texas	38147	Southwestern Public Service	2010	Electric Technical Update
Alaska	Regulatory Commission of Alaska	U-09-015	Alaska Electric Light and Power	2009-2010	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-043	Utility Services of Alaska	2009-2010	Water Depreciation Study
Michigan	Michigan Public Service Commission	U-16055	Consumers Energy/DTE Energy	2009-2010	Ludington Pumped Storage Depreciation Study
Michigan	Michigan Public Service Commission	U-16054	Consumers Energy	2009-2010	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-15963	Michigan Gas Utilities Corporation	2009	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-15989	Upper Peninsula Power Company	2009	Electric Depreciation Study
Texas	Railroad Commission of Texas	9869	Atmos Energy	2009	Shared Services Depreciation Study
Mississippi	Mississippi Public Service Commission	09-UN-334	CenterPoint Energy Mississippi	2009	Gas Depreciation Study
Texas	Railroad Commission of Texas	9902	CenterPoint Energy Houston	2009	Gas Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Colorado	Colorado Public Utilities Commission	09AL-299E	Public Service Company of Colorado	2009	Electric Depreciation Study
Tennessee	Tennessee Regulatory Authority	11-00144	Piedmont Natural Gas	2009	Gas Depreciation Study
Louisiana	Louisiana Public Service Commission	U-30689	Cleco	2008	Electric Depreciation Study
Texas	Public Utility Commission of Texas	35763	Southwestern Public Service Company	2008	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Wisconsin	Wisconsin	05-DU-101	WE Energies	2008	Electric, Gas, Steam and Common Depreciation Studies
North Dakota	North Dakota Public Service Commission	PU-07-776	Northern States Power Company - Minnesota	2008	Net Salvage
New Mexico	New Mexico Public Regulation Commission	07-00319-UT	Southwestern Public Service Company	2008	Testimony – Depreciation
Multiple States	Railroad Commission of Texas	9762	Atmos Energy	2007-2008	Shared Services Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E015/D-08-422	Minnesota Power	2007-2008	Electric Depreciation Study
Texas	Public Utility Commission of Texas	35717	Oncor	2008	Electric Depreciation Study
Texas	Public Utility Commission of Texas	34040	Oncor	2007	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-15629	Consumers Energy	2006-2009	Gas Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Colorado	Colorado Public Utilities Commission	06-234-EG	Public Service Company of Colorado	2006	Electric Depreciation Study
Arkansas	Arkansas Public Service Commission	06-161-U	CenterPoint Energy – Arkla Gas	2006	Gas Distribution Depreciation Study and Removal Cost Study
Texas, New Mexico	Public Utility Commission of Texas	32766	Southwestern Public Service Company	2005-2006	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Texas	Railroad Commission of Texas	9670/9676	Atmos Energy Corp	2005-2006	Gas Distribution Depreciation Study
Texas	Railroad Commission of Texas	9400	TXU Gas	2003-2004	Gas Distribution Depreciation Study
Texas	Railroad Commission of Texas	9313	TXU Gas	2002	Gas Distribution Depreciation Study
Texas	Railroad Commission of Texas	9225	TXU Gas	2002	Gas Distribution Depreciation Study
Texas	Public Utility Commission of Texas	24060	TXU	2001	Line Losses
Texas	Public Utility Commission of Texas	23640	TXU	2001	Line Losses
Texas	Railroad Commission of Texas	9145-9148	TXU Gas	2000-2001	Gas Distribution Depreciation Study
Texas	Public Utility Commission of Texas	22350	TXU	2000-2001	Electric Depreciation Study, Unbundling
Texas	Railroad Commission of Texas	8976	TXU Pipeline	1999	Pipeline Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Texas	Public Utility Commission of Texas	20285	TXU	1999	Fuel Company Depreciation Study
Texas	Public Utility Commission of Texas	18490	TXU	1998	Transition to Competition
Texas	Public Utility Commission of Texas	16650	TXU	1997	Customer Complaint
Texas	Public Utility Commission of Texas	15195	TXU	1996	Mining Company Depreciation Study
Texas	Public Utility Commission of Texas	12160	TXU	1993	Fuel Company Depreciation Study
Texas	Public Utility Commission of Texas	11735	TXU	1993	Electric Depreciation Study

ATMOS ENERGY CORPORATION

SHARED SERVICES UNIT

DEPRECIATION RATE STUDY

As of September 30, 2019

http://www.utilityalliance.com

ATMOS ENERGY CORPORATION - SHARED SERVICES UNIT
DEPRECIATION RATE STUDY
EXECUTIVE SUMMARY

Atmos Energy Corporation ("Atmos" or "Company") engaged Alliance Consulting Group to conduct a depreciation study of the Company's Shared Services Unit ("SSU" or "Shared Services") operations depreciable assets as of fiscal year end September 30, 2019. SSU provides support to Atmos Energy Corporation's regulated utility divisions.

The regulated natural gas utility divisions during the year ended September 30, 2019 were:

- Atmos Colorado-Kansas Division
- Atmos Louisiana Division
- Atmos Kentucky Mid-States (Kentucky, Tennessee, and Virginia) Division
- Atmos Mississippi Division
- Atmos Mid-Tex Division
- Atmos West Texas Division
- Atmos Pipeline Texas Division

The depreciation rates are based on the straight-line method, equal life group ("ELG") procedure, and remaining-life technique. This study results in an annual depreciation expense accrual of $25.5 million when applied to depreciable plant balances as of September 30, 2019.

The depreciation study we conducted analyzed and developed depreciation recommendations at an account level. The resulting annual depreciation accrual amounts and depreciation rates contained in this study are at the account level. The Company will accrue depreciation expense based on the account level depreciation rates developed in this study. Appendix A provides the annual depreciation expense.

ATMOS ENERGY CORPORATION
ATMOS SHARED SERVICES UNIT
DEPRECIATION RATE STUDY
As of September 30, 2019
Table of Contents

PURPOSE

The purpose of this study is to develop depreciation rates for the depreciable property as recorded on Shared Services' books at September 30, 2019. The account based depreciation rates were designed to recover the total remaining undepreciated investment, adjusted for net salvage, over the remaining life of Shared Services' property on a straight-line basis. Non-depreciable property and property which is amortized, such as intangibles were excluded from this study.

Shared Services is a division of Atmos Corporation dedicated to providing various support services to its operating companies. Shared Services consists of two Divisions, Division 02 – General Office and Division 12 – Customer Support. For purposes of this study, Division 02 and Division 12 were combined for analysis and rate calculations. As of the study date, Shared Services supported regulated gas utility divisions operating in eight different states.

STUDY RESULTS

The existing and current study annual depreciation expense both result from the use of Iowa Curve dispersion patterns with average service lives over a straight-line basis as well as the equal life group ("ELG") procedure and remaining-life technique. Consideration was given to appropriate net salvage factors in the development of the study recommended depreciation rates. Detailed information for each of these factors will follow in this report.

Overall depreciation rates for Shared Services depreciable property are shown in Appendix A. These rates translate into an annual depreciation accrual of $25.5 million based on Shared Services' depreciable investment at September 30, 2019.

The recommended annual depreciation accrual rates and expense are shown in Appendix A. Appendix B presents the development of the depreciation rates and annual accruals. Appendix C presents the recommended study mortality and net salvage parameters by account. Appendix D shows net salvage history by plant account.

GENERAL DISCUSSION

Definition

The term "depreciation" as used in this study is considered in the accounting sense, that is, a system of accounting that distributes the cost of assets, less net salvage (if any), over the estimated useful life of the assets in a systematic and rational manner. It is a process of allocation, not valuation. This expense is systematically allocated to accounting periods over the life of the properties. The amount allocated to any one accounting period does not necessarily represent the loss or decrease in value that will occur during a particular period. The Company accrues depreciation based on original cost of all depreciable property included in each functional property group. On retirement the full cost of depreciable property, less the net salvage value, is charged to the depreciation reserve.

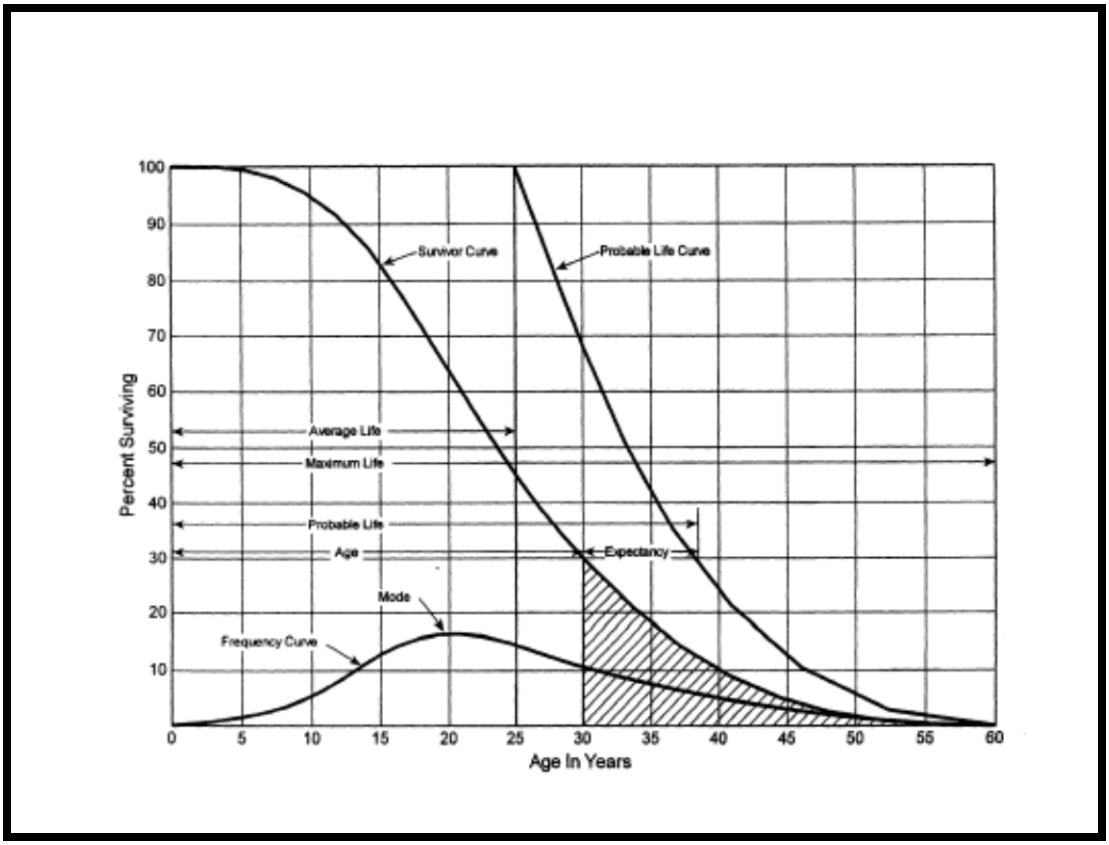
Basis of Depreciation Estimates

The straight-line, ELG, remaining-life depreciation system was employed to calculate annual and accrued depreciation in this study. In this system, the annual depreciation expense for each group is computed by dividing the original cost of the asset less allocated depreciation reserve less estimated net salvage by its respective equal life group remaining life. The resulting annual accrual amounts of all depreciable property within a function were accumulated, and the total was divided by the original cost of all functional depreciable property to determine the depreciation rate. The calculated remaining lives and annual depreciation accrual rates were based on attained ages of plant in service and the estimated service life and salvage characteristics of each depreciable group. The computations of the annual depreciation rates are shown in Appendix B and remaining life calculations are provided in the workpapers.

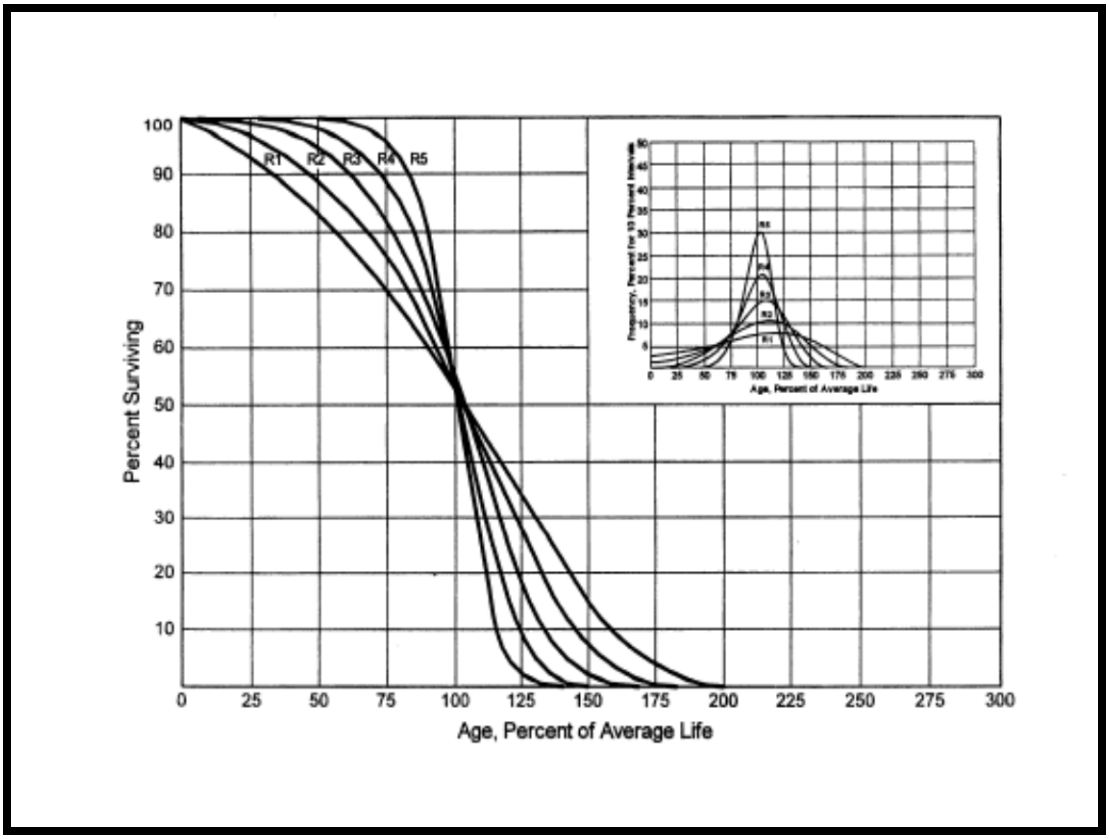
Actuarial analysis was used with each account within a function, where sufficient data was available, and judgment was used to some degree on all accounts.

Survivor Curves

To fully understand depreciation projections in a regulated utility setting, there must be a basic understanding of survivor curves. Individual property units within a group do not normally have identical lives or investment amounts. The average life of a group can be determined by first constructing a survivor curve which is plotted as a percentage of the units surviving at each age. A survivor curve represents the percentage of property remaining in service at various age intervals. The Iowa Curves are the result of an extensive investigation of life characteristics of physical property made at Iowa State College Engineering Experiment Station in the first half of the prior century. Through common usage, revalidation and regulatory acceptance, these curves have become a descriptive standard for the life characteristics of industrial property. An example of an Iowa Curve is shown below.



There are four families in the Iowa Curves that are distinguished by the relation of the age at the retirement mode (largest annual retirement frequency) and the average life. For distributions with the mode age greater than the average life, an "R" designation (i.e., Right modal) is used. The family of “R” moded curves is shown below.



Similarly, an "S" designation (i.e., Symmetric modal) is used for the family whose mode age is symmetric about the average life. An "L" designation (i.e., Left modal) is used for the family whose mode age is less than the average life. A special case of left modal dispersion is the "O" or origin modal curve family. Within each curve family, numerical designations are used to describe the relative magnitude of the retirement frequencies at the mode. A "6" indicates that the retirements are not greatly dispersed from the mode (i.e., high mode frequency) while a "1" indicates a large dispersion about the mode (i.e., low mode frequency).

For example, a curve with an average life of 30 years and an "L3" dispersion is a moderately dispersed, left modal curve that can be designated as a 30 L3 Curve. An SQ, or square, survivor curve occurs where no dispersion is present (i.e., units of common age retire simultaneously).

Most property groups can be closely fitted to one Iowa Curve with a unique average service life. The blending of judgment concerning current conditions and future trends along with the matching of historical data permits the depreciation analyst to make an informed selection of an account's average life and retirement dispersion pattern.

Actuarial Analysis

Actuarial analysis (retirement rate method) was used in evaluating historical asset retirement experience where vintage data were available and sufficient retirement activity was present. In actuarial analysis, interval exposures (total property subject to retirement at the beginning of the age interval, regardless of vintage) and age interval retirements are calculated. The complement of the ratio of interval retirements to interval exposures establishes a survivor ratio. The survivor ratio is the fraction of property surviving to the end of the selected age interval, given that it has survived to the beginning of that age interval. Survivor ratios for all of the available age intervals were chained by successive multiplications to establish a series of survivor factors, collectively known as an observed life table. The observed life table shows the experienced mortality characteristic of the account and may be compared to standard mortality curves such as the Iowa Curves. Where data was available, accounts were analyzed using this method. Placement bands were used to illustrate the composite history over a specific era, and experience bands were used to focus on retirement history for all vintages during a set period. The results from these analyses for those accounts which had data sufficient to be analyzed using this method are shown in the Life Analysis section of this report.

Judgment

Any depreciation study requires informed judgment by the analyst conducting the study. A knowledge of the property being studied, company policies and procedures, general trends in technology and industry practice, and a sound basis of understanding depreciation theory are needed to apply this informed judgment. Judgment was used in areas such as survivor curve modeling and selection, depreciation method selection, simulated plant record method analysis, and actuarial analysis.

Judgment is not defined as being used in cases where there are specific, significant pieces of information that influence the choice of a life or curve. Those cases would simply be a reflection of specific facts into the analysis. Where there are multiple factors, activities, actions, property characteristics, statistical inconsistencies, implications of applying certain curves, property mix in accounts or a multitude of other considerations that impact the analysis (potentially in various directions), judgment is used to take all of these factors and synthesize them into a general direction or understanding of the characteristics of the property. Individually, no one factor in these cases may have a substantial impact on the analysis, but overall, may shed light on the utilization and characteristics of assets. Judgment may also be defined as deduction, inference, wisdom, common sense, or the ability to make sensible decisions. There is no single correct result from statistical analysis; hence, there is no answer absent judgment. At the very least for example, any analysis requires choosing which bands to place more emphasis.

The establishment of appropriate average service lives and retirement dispersions for Shared Services' accounts requires judgment to incorporate the understanding of the operation of the system with the available accounting information analyzed using the Retirement Rate actuarial methods. The appropriateness of lives and curves depends not only on statistical analyses, but also on how well future retirement patterns will match past retirements.

Current applications and trends in use of the equipment also need to be factored into life and survivor curve choices in order for appropriate mortality characteristics to be chosen.

Equal Life Group Depreciation

Atmos agreed that the continued use of the ELG depreciation procedure was appropriate. This study uses the ELG depreciation procedure to group the assets within each account. After an average service life and dispersion were selected for each account, those parameters were used to estimate what portion of the surviving investment of each vintage was expected to retire. The depreciation of the group continues until all investment in the vintage group is retired. ELG groups are defined by their respective account dispersion, life, and net salvage estimates. A straight-line rate for each ELG group is computed and accumulated across each vintage. The resulting rate for each ELG group is designed to recover all retirements less net salvage as each vintage retires. The ELG procedure recovers net book cost over the life of each ELG group rather than averaging many components. It also closely matches the concept of component or item accounting found in all accounting textbooks.

Theoretical Depreciation Reserve

The Company's book depreciation reserves were reallocated based on the theoretical reserves for each account. This study used a reserve model that relied on a prospective concept relating future retirement and accrual patterns for property, given current life and salvage estimates. The theoretical reserve of a group is developed from the estimated remaining life, total life of the property group, and estimated net salvage. The theoretical reserve represents the portion of the group cost that would have been accrued if current forecasts were used throughout the life of the group for future depreciation accruals. The computation involves multiplying the vintage balances within the group by the theoretical reserve ratio for

each vintage. The equal life group method requires an estimate of dispersion and service life to establish how much of each vintage is expected to be retired in each year until all property within the vintage is retired. Estimated average service lives and dispersion determine the amount within each equal life group. The equal life group-remaining-life theoretical reserve ratio (RRELG) is calculated as:

$$RRELG = 1 - \frac{(ELG\ Remaining\ Life)}{(ELG\ Life)} * (1 - Net\ Salvage\ Ratio)$$

DETAILED DISCUSSION

Depreciation Study Process

This depreciation study encompassed four distinct phases. The first phase involved data collection and field interviews. The second phase was where the initial data analysis occurred. The third phase was where the information and analysis was evaluated. Once the first three stages were complete, the fourth phase began. This phase involved the calculation of deprecation rates and documenting the corresponding recommendations.

During the Phase I data collection process, historical data was compiled from continuing property records and general ledger systems. Data was validated for accuracy by extracting and comparing to multiple financial system sources. Audit of this data was validated against historical data from prior periods, historical general ledger sources, and field personnel discussions. This data was reviewed extensively to put in the proper format for a depreciation study. Further discussion on data review and adjustment is found in the Salvage Considerations Section of this study. Also as part of the Phase I data collection process, numerous discussions were conducted with engineers and field operations personnel to obtain information that would assist in formulating life and salvage recommendations in this study. One of the most important elements of performing a proper depreciation study is to understand how the Company utilizes assets and the environment of those assets. Interviews with engineering and operations personnel are important ways to allow the analyst to obtain information that is beneficial when evaluating the output from the life and net salvage programs in relation to the Company's actual asset utilization and environment. Information that was gleaned in these discussions is found both in the Detailed Discussion of this study in the life analysis and salvage analysis sections and also in workpapers.

Phase 2 is where the actuarial analysis is performed. Phase 2 and 3 overlap to a significant degree. The detailed property records information is used in Phase 2 to develop observed life tables for life analysis. These tables are visually compared to industry standard tables to determine historical life characteristics. It is possible that the analyst would cycle back to this phase based on the evaluation process performed in Phase 3. Net salvage analysis consists of compiling historical salvage and removal data by functional group to determine values and trends in gross salvage and removal cost. This information was then carried forward into Phase 3 for the evaluation process.

Phase 3 is the evaluation process which synthesizes analysis, interviews, and operational characteristics into a final selection of asset lives and net salvage parameters. The historical analysis from Phase 2 is further enhanced by the incorporation of recent or future changes in the characteristics or operations of assets that were revealed in Phase 1. Phases 2 and 3 allow the depreciation analyst to validate the asset characteristics as seen in the accounting transactions with actual Company operational experience.

Finally, Phase 4 involved the calculation of accrual rates, making recommendations and documenting the conclusions in a final report. The calculation of accrual rates is found in Appendix B. Recommendations for the various accounts are contained within the Detailed Discussion of this report. The depreciation study flow diagram shown as Figure 1[1] documents the steps used in conducting this study. Depreciation Systems, page 289 documents the same basic processes in performing a depreciation study which are: Statistical analyses, evaluation of statistical analysis, discussions with management, forecast assumptions, write logic supporting forecasts and estimation, and write final report.

[1] Public Utility Finance & Accounting, A Reader

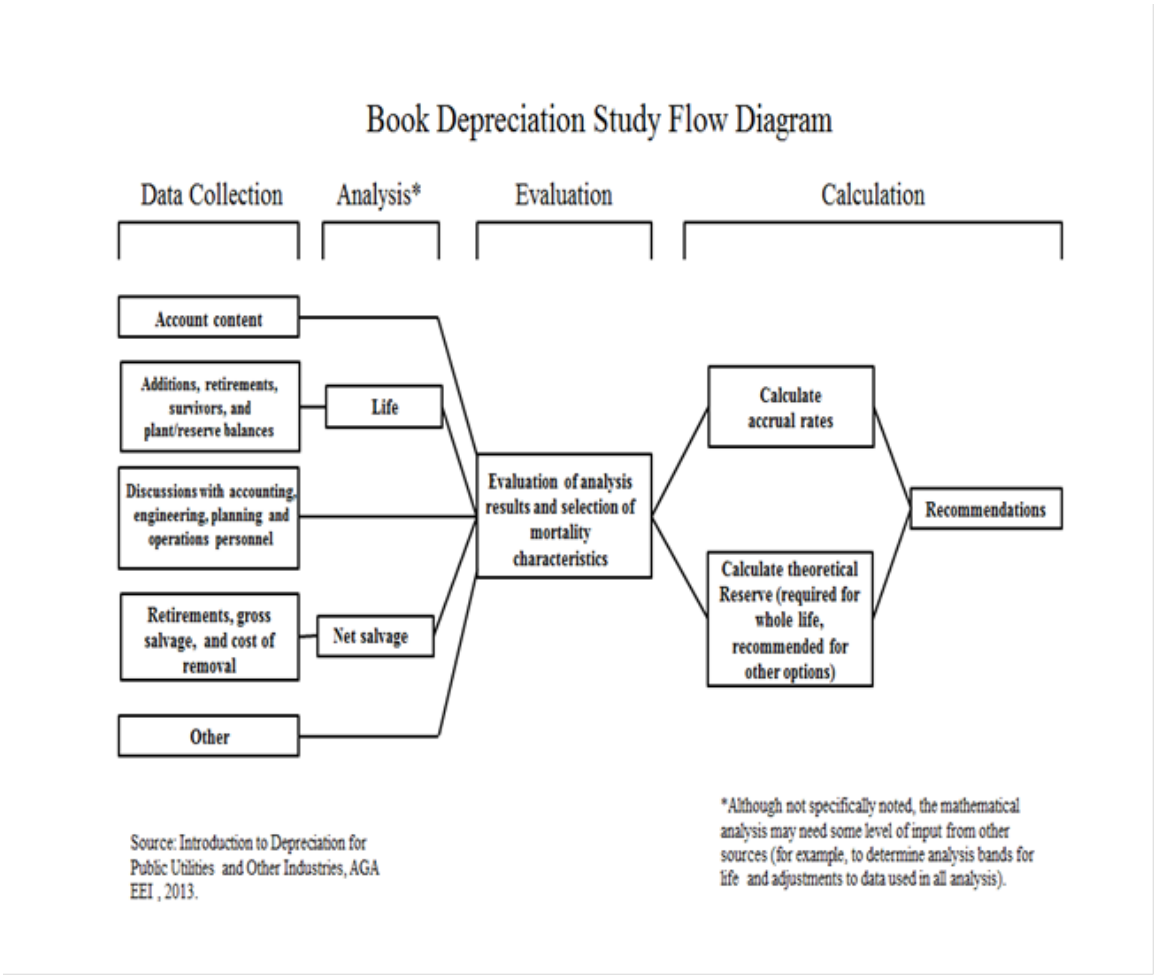


Figure 1

SHARED SERVICES DEPRECIATION STUDY PROCESS

Depreciation Rate Calculation

Annual depreciation expense amounts for the depreciable property accounts of Shared Services were calculated by the straight line, equal life group, and remaining-life system. With this approach, remaining lives were calculated according to standard ELG group expectancy techniques, using the Iowa Survivor Curves noted in the calculation. For each plant account, the difference between the surviving investment, adjusted for estimated net salvage and the allocated book depreciation reserve, was divided by the average remaining life to yield the annual depreciation expense. These calculations are shown in Appendix B.

Remaining Life Calculation

The establishment of appropriate average service lives and retirement dispersions for each account within a functional group was based on engineering judgment that incorporated available accounting information analyzed using the actuarial methods. After establishment of appropriate average service lives and retirement dispersions, remaining lives were computed for each account. The theoretical depreciation reserve with zero net salvage (used in calculating remaining life) was calculated using theoretical reserve ratios as defined in the theoretical reserve portion of the general discussion section. The difference between plant balance and theoretical reserve was then spread over the ELG depreciation accruals. After accumulating the ELG accruals across each vintage, the annual accrual was divided into the net balance to compute remaining life. Details of the theoretical reserve computations, ELG accruals, and remaining life are found by account in the study workpapers.

Calculation Process

Annual depreciation expense amounts for all accounts were calculated by the straight line, remaining life procedure.

In a whole life representation, the annual accrual rate is computed by the

following equation,

$$\text{Annual Accrual Rate} = \frac{(100\% - \text{Net Salvage Percent})}{\text{Average Service Life}}$$

Use of the remaining life depreciation system adds a self-correcting mechanism, which accounts for any differences between theoretical and book depreciation reserve over the remaining life of the group. With the straight line, remaining life, average life group system using Iowa Curves, composite remaining lives were calculated according to standard broad group expectancy techniques, noted in the formula below:

$$\text{Composite Remaining Life} = \frac{\sum \text{Original Cost} - \text{Theoretical Reserve}}{\sum \text{Whole Life Annual Accrual}}$$

For each plant account, the difference between the surviving investment, adjusted for estimated net salvage, and the allocated book depreciation reserve, was divided by the composite remaining life to yield the annual depreciation expense as noted in this equation where the net salvage percent represents future net salvage.

$$\text{Annual Depreciation Expense} = \frac{\text{Original Cost} - \text{Book Reserve} - (\text{Original Cost}) * (1 - \text{Net Salvage \%})}{\text{Composite Remaining Life}}$$

Within a group, the sum of the group annual depreciation expense amounts, as a percentage of the depreciable original cost investment summed, gives the annual depreciation rate as shown below:

$$\text{Annual Depreciation Rate} = \frac{\sum \text{Annual Depreciation Expense}}{\sum \text{Original Cost}}$$

These calculations are shown in Appendix B. The calculations of the theoretical depreciation reserve values and the corresponding remaining life calculations are shown in workpapers. Book depreciation reserves were allocated to individual accounts and the theoretical reserve computation was used to compute a composite remaining life for each account.

LIFE ANALYSIS

The retirement rate actuarial analysis method was applied to all accounts for Shared Services. For each account, an actuarial retirement rate analysis was made with placement and experience bands of varying width. The historical observed life table was plotted and compared with various Iowa Survivor Curves to obtain the most appropriate match. A selected curve for each account is shown in the Life Analysis Section of this report. The observed life tables for all analyzed placement and experience bands are provided in workpapers.

For the overall band (i.e. placement from earliest vintage year, which varied for each account through 2019) for each account, various dispersion curves were plotted. Frequently, visual matching would confirm one specific dispersion pattern (i.e. L, S. or R) as a better match than others. The next step would be to determine the most appropriate life using that dispersion pattern. Then, after looking at the overall experience band, different experience bands were plotted and analyzed, for instance 1996-2019, 2005-2019, etc. Next placement bands of varying width were plotted with each experience band discussed above. Repeated matching usually pointed to a focus on one dispersion family and small range of service lives. The goal of visual matching was to minimize the differential between the observed life table and Iowa curve in top and mid range of the plots. These results are used in conjunction with all other factors that may influence asset lives.

Due to the nature of the Shared Services Division and the allocation of costs among numerous entities and across various state regulatory jurisdictions, the study does not make a comparison of approved to proposed depreciation rates, due to timing differences and the possibility of changes from the various regulatory agencies approving rates. Instead, we will provide the proposed from the prior study (2014) and the current study (2019) in the account discussions below.

NET SALVAGE CONSIDERATIONS

When a capital asset is retired, physically removed from service and finally disposed of, terminal retirement is said to have occurred. The residual value of a terminal retirement is called gross salvage. Net salvage is the difference between the gross salvage (what the asset was sold for) and the removal cost (cost to remove and dispose of the asset).

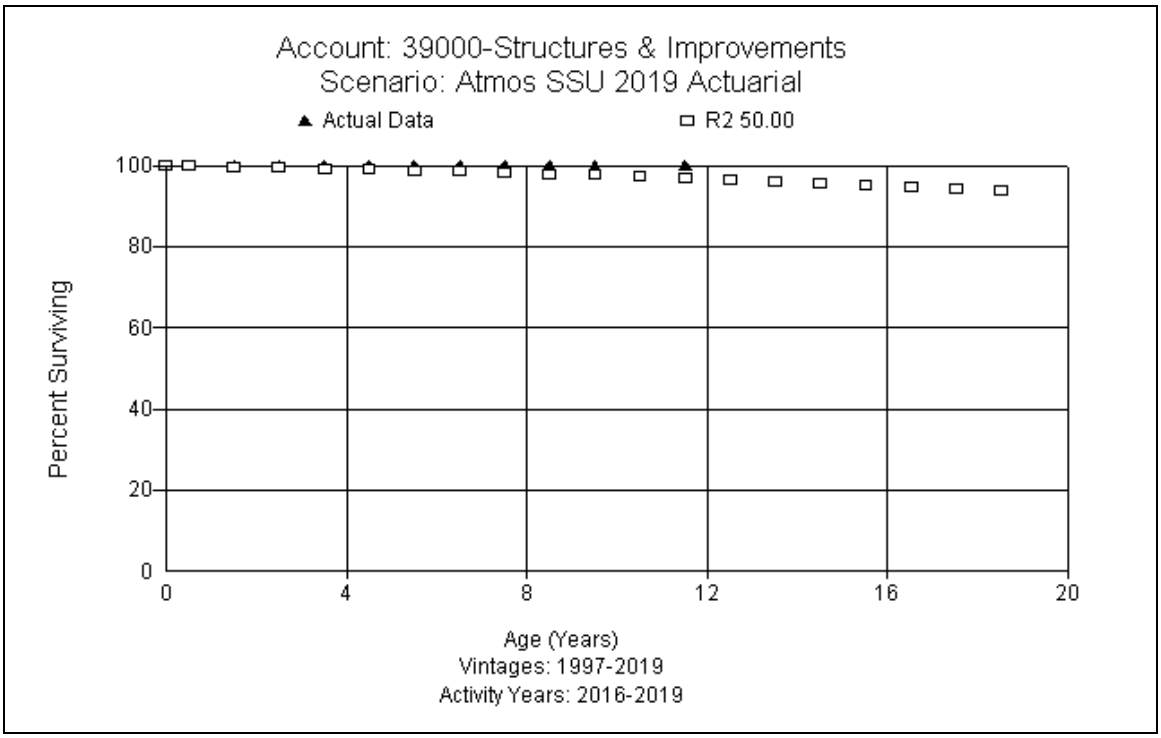
Net Salvage Characteristics

The net salvage analysis, for each account, is shown in Appendix D. Moving averages for intervals are also included in Appendix D. The assets of Shared Services generally do not incur cost of removal and salvage has declined in recent years. In this study a zero percent net salvage is recommended for each account, with the exception of Account 392, Transportation Equipment.

Account Life and Net Salvage Analysis

Account 39000 – Structures & Improvements

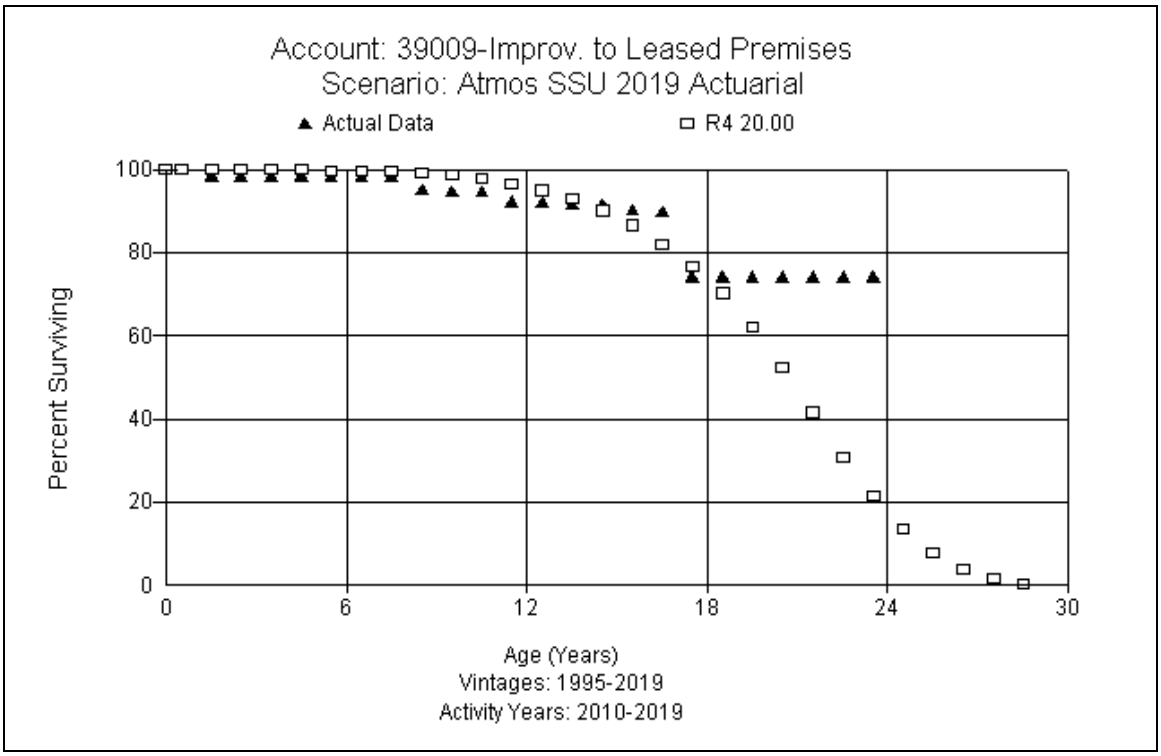
This account includes the cost of buildings and improvements including the Greenville operations center, the Charles K. Vaughn training center, and the call center in Waco. The account balance is $36 million. The current average age of investment is 9.05 years. There have been few retirements recorded and the mix of assets is weighted to the longer lived buildings. Based on judgment and type of assets this study recommends moving to a 50 year life with the R2 dispersion pattern. A graph of the observed life table and the recommended life and curve are shown below.



Little to no salvage is expected. However, some cost of removal, at the end of life, is expected for some of the assets but none has been recorded. Therefore, a zero percent net salvage is recommended at this time.

Account 39009 – Improvements to Leased Premises

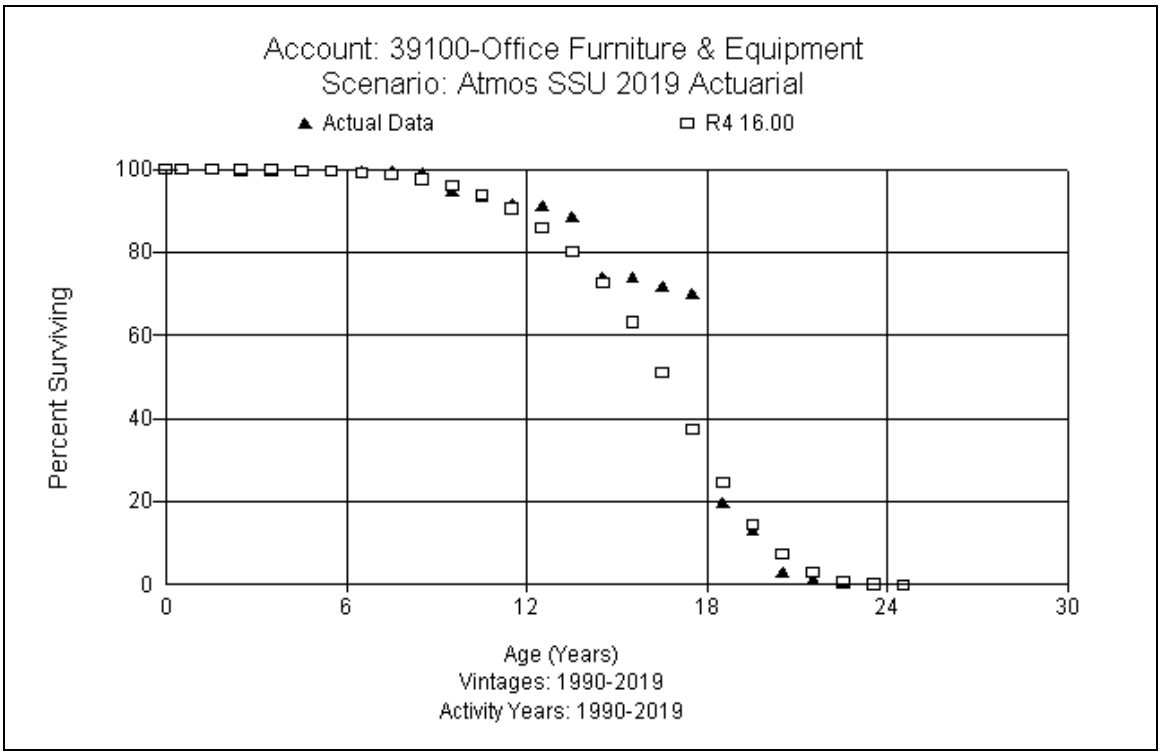
This account includes the cost of improvements to leased premises such as the Dallas office and call centers. The balance is $12 million. Assets in this account are tied to their lease term, which is 20 years with renewal options. There is no basis to change. This study recommends retaining the 20 R4 at this time. A graph of the observed life table and the recommended life and curve are shown below.



No salvage or removal cost has been recorded and none is expected in the future, therefore a zero percent net salvage is recommending for this account.

Account 39100 – Office Furniture and Equipment

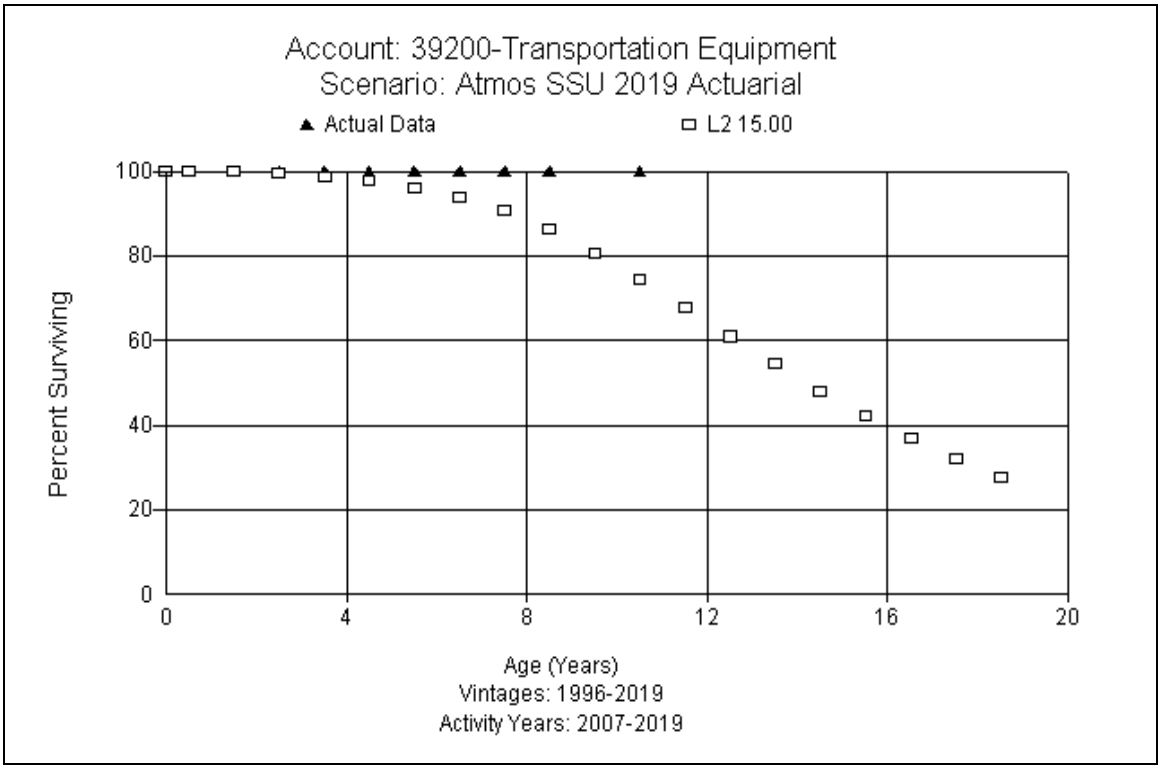
This account consists of modular furniture, desks, chairs, bookcases, credenzas, file cabinets, office machines and other miscellaneous equipment located at the various locations. The balance is $9.1 million. An expected life range for the assets in this account is 15 to 20 years or longer. However, the current study analysis indicates the assets in this account are experiencing a shorter life. Discussions with Company personnel indicated some offices had been renovated and more retirements have been made than would have been expected in the past. Based on Company input, the analysis, and future expectations, this study recommends moving to a 16 R4 dispersion pattern. A graph of the observed life table and the recommended life and curve are shown below.



There is no cost of removal and no salvage has been recorded since 1997. No salvage is expected at retirement in the future. A zero percent net salvage rate is recommended for this account.

Account 39200 – Transportation Equipment

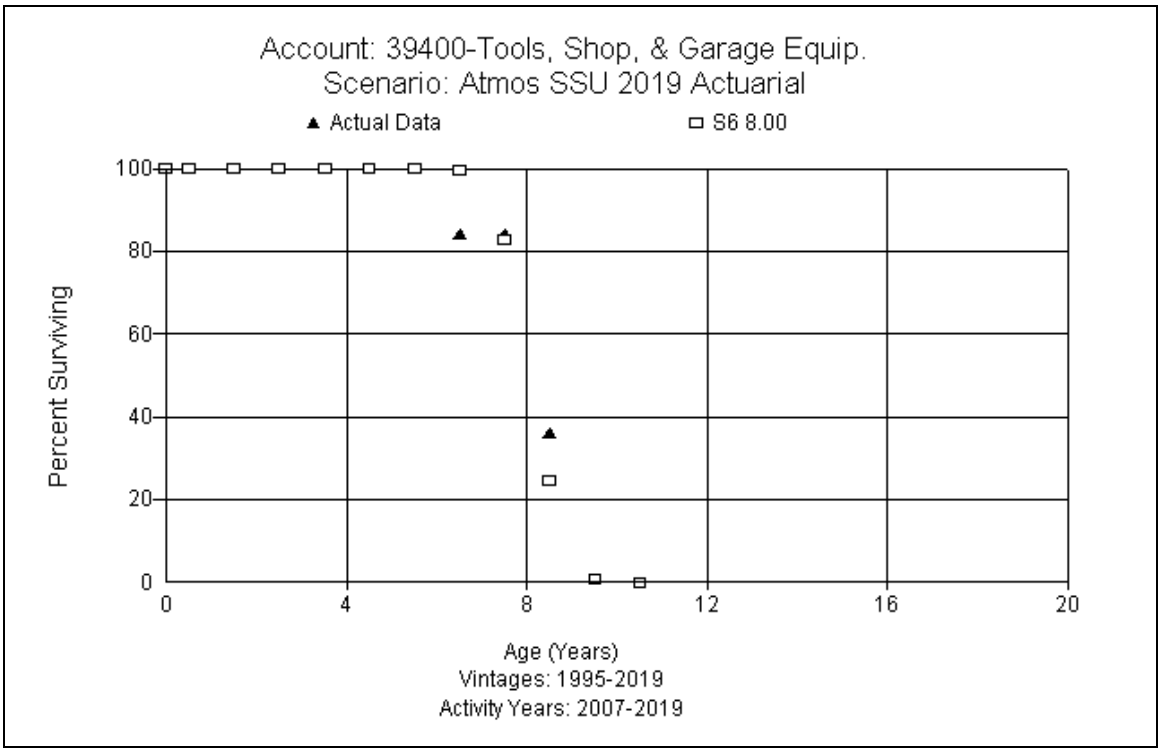
This account consists of all transportation equipment. The balance is $103 thousand. Depending on the type and mix of assets, this account can range from 5-15 years. The current average age of investment is 9.33 years. Only one retirement has been recorded. The Company leases most of its vehicles and surviving assets are golf carts, a trailer, and other miscellaneous equipment. Based on the surviving assets, this study recommends moving to a 15 L2. A graph of the observed life table and the recommended life and curve are shown below.



No cost of removal has been recorded and none is expected. There has been no salvage recorded over the analysis 2007-2019 historical experience. However, some salvage is expected and a 10 percent net salvage rate is recommended for this account.

Account 39400 – Tools, Shop & Garage Equipment

This account consists of various small tools and equipment used at the various locations. The balance is $606 thousand in this account. The average age of investment is 4.26 years. Due to the type and use of the assets and the analysis, this study recommends moving to an 8 S6 life and dispersion pattern. A graph of the observed life table and the recommended life and curve are shown below.



No salvage or cost of removal has been recorded over the analysis 2007-2019 historical experience. There is generally little or no salvage and no cost of removal expected at the time of retirement. This study recommends a zero percent net salvage rate for this account.

Account 39500 – Laboratory Equipment

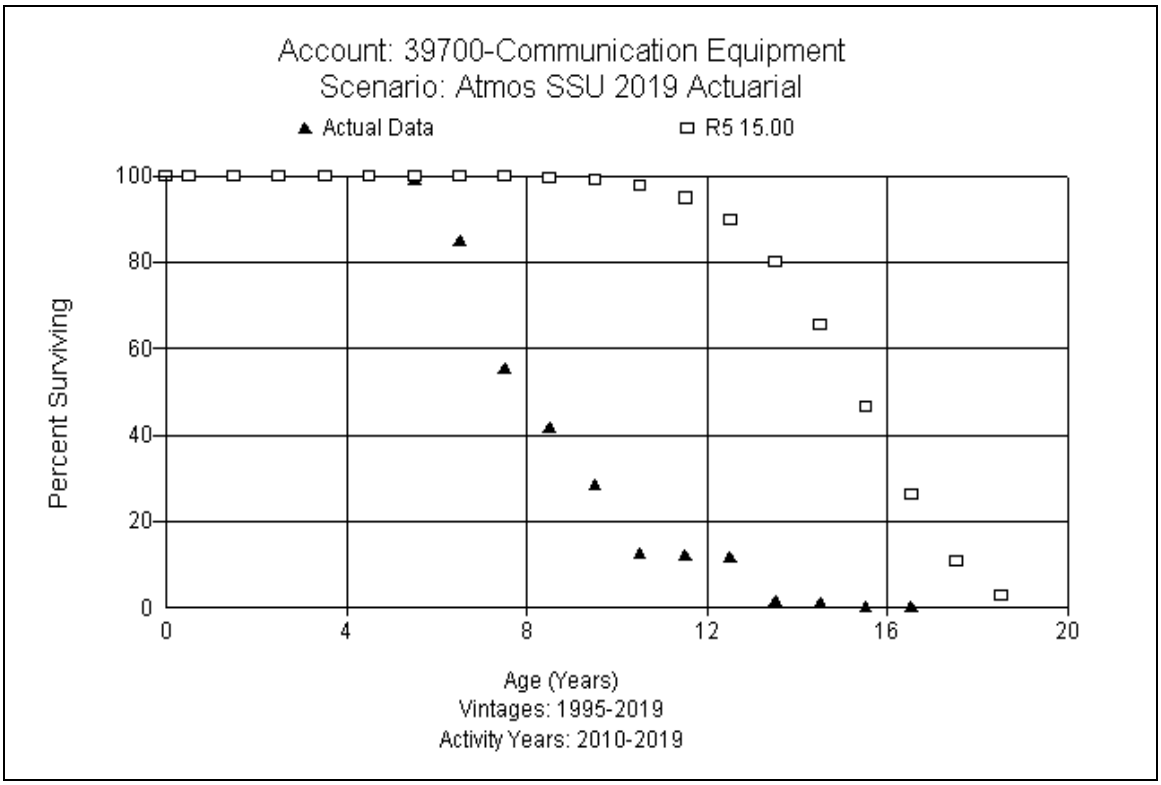
This account consists of laboratory equipment. The balance is $24 thousand in this account. The average age of investment is 8.01 years. No retirement activity has been recorded so no curve fits were made. Based on the type and use of the assets, this study recommends retention of the 10 R2. No graph is provided.

No salvage or cost of removal has been recorded. There is generally little or no salvage and no cost of removal related to the equipment in the account. This study recommends a zero percent net salvage rate for this account.

Account 39700 – Communications Equipment

The communications equipment account includes communication, computer hardware, telephone, and radio equipment used at the various locations. The balance is $3.3 million in this account. Discussions with Company personnel indicated that around 2009, there was a contact center built in Amarillo, of which the communication assets are still in service. The average age of the assets is around 10 years old and they have no specific plans to replace significant portions of the communications infrastructure at this point. The Company indicated within 6-9 months, all switches for the call center will be split between Greenville Data center (primary) and Lincoln (backup). All switches were replaced within the last 3 years, including the Lincoln telephone switch. Call center switches were 10-15 years old at retirement. A 15 year life is reasonable and the Company will replace pieces under O&M in the interim.

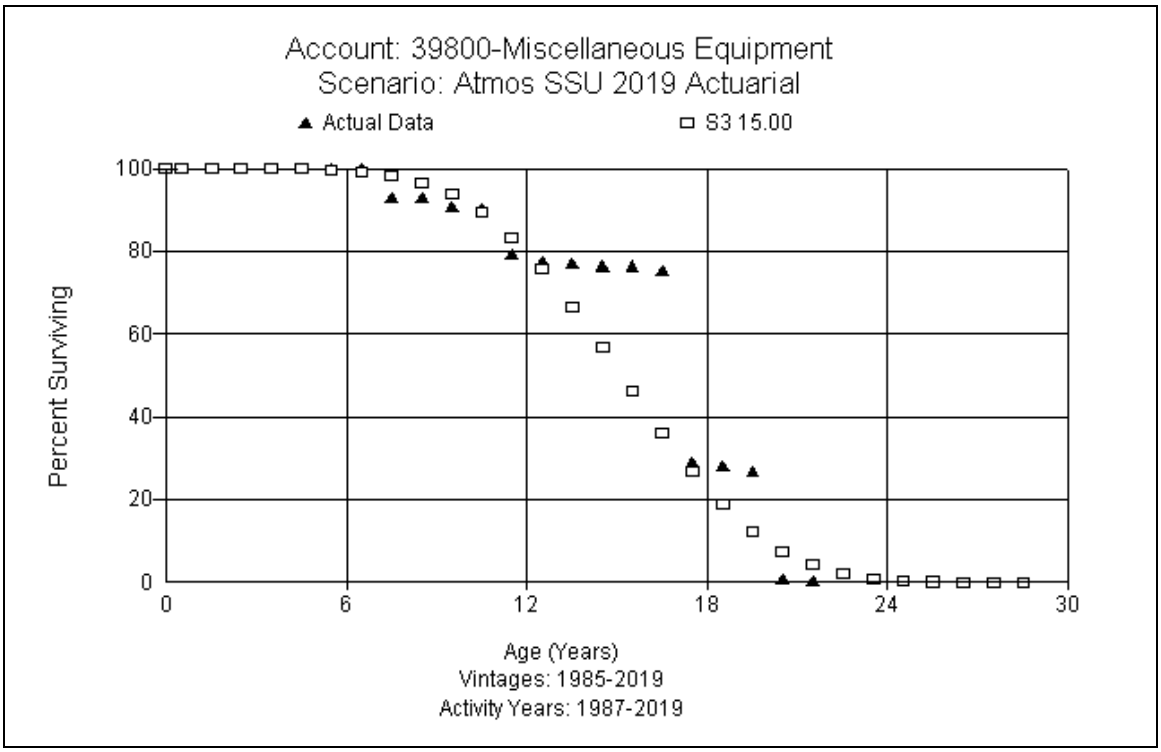
Based on the analysis, the best fits were indicating a life between 7-9 years, which is due to a large level of retirements in the last few years. The shorter life indication in the analysis is not reflective of Company expectations for these assets. Giving consideration to the type, mix, analysis, Company input and judgment, a 15 year life with the R2 dispersion is recommended. A graph of the observed life table and the recommended life and curve are shown below.



Both salvage and cost of removal were recorded in 2004, but none since. No salvage is expected in the future at time of retirement. Little, if any, cost of removal is expected to be recorded for the assets. This study recommends a zero percent net salvage rate for this account.

Account 39800 - Miscellaneous Equipment

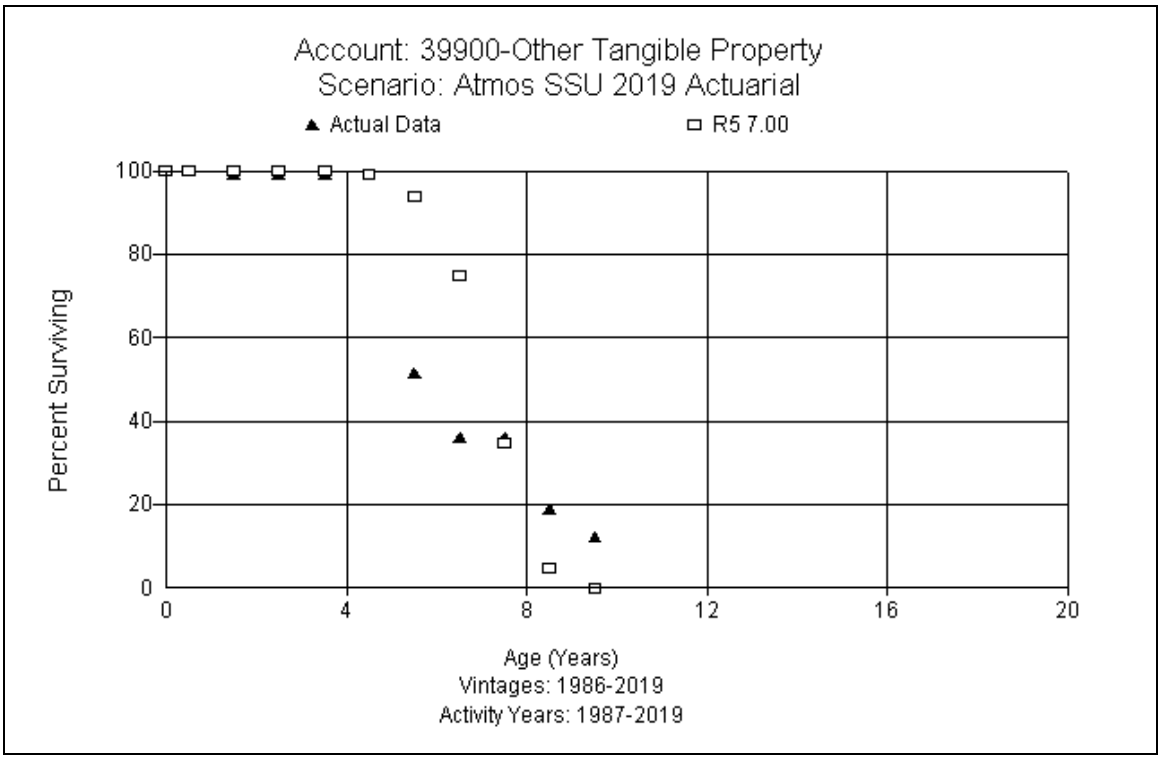
This account consists of various small office equipment items, such as kitchen appliances, televisions and audio/video equipment that are not homogeneous with other plant accounts and are at the various locations. The balance is $742 thousand. The majority of the fits, except the most recent bands, indicated a life around 15 years. The 15 year average service life with the S3 dispersion for assets in this account is a good fit and is recommended. A graph of the observed life table and the recommended life and curve are shown below.



No salvage or cost of removal has been recorded since 1996 and none is expected at the time of retirement. This study recommends a zero percent net salvage rate for this account.

Account 39900 – Other Tangible Property

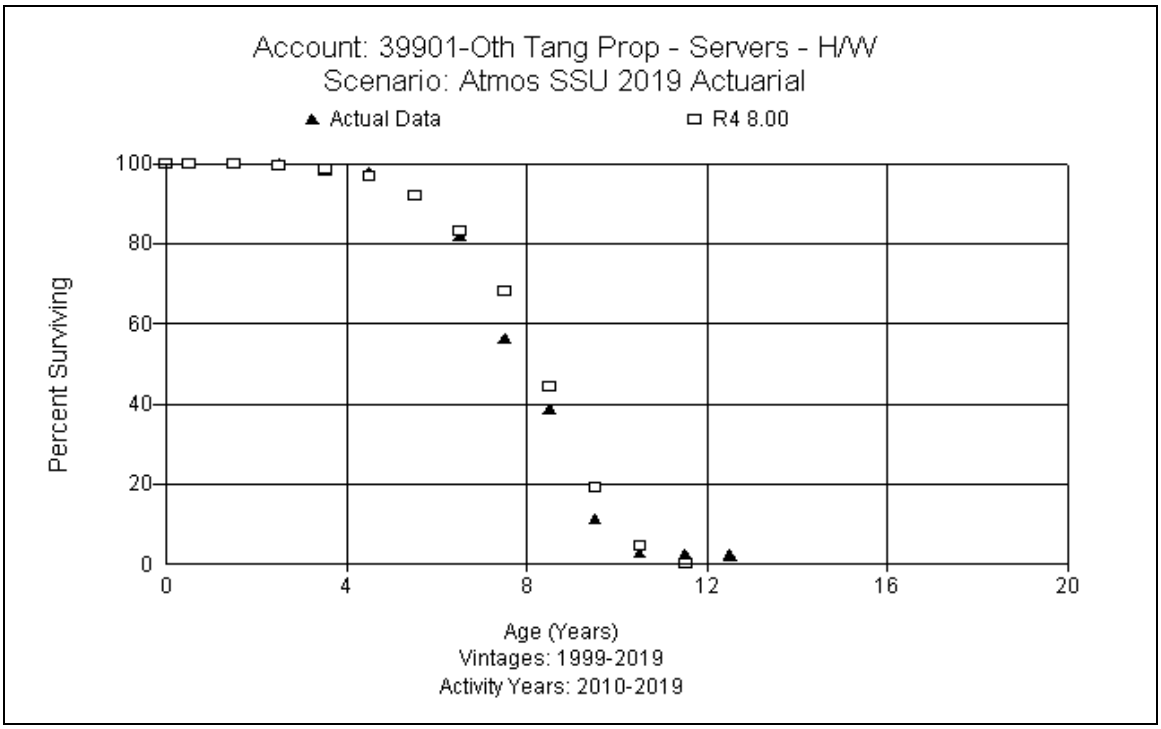
The other tangible property account holds miscellaneous equipment. The account balance is $296 thousand. The average age of the investment is 2.43 years and average age of retirements is 7.01 years. Best fits indicate a 7 year life, which is consistent with the expectations for this account. The study recommends a 7 year life with the R5 dispersion for this account. A graph of the observed life table and the recommended life and curve are shown below.



There has been no salvage or cost of removal recorded and none is expected in the future. This study recommends a zero percent net salvage rate for this account.

Account 39901 – Servers Hardware

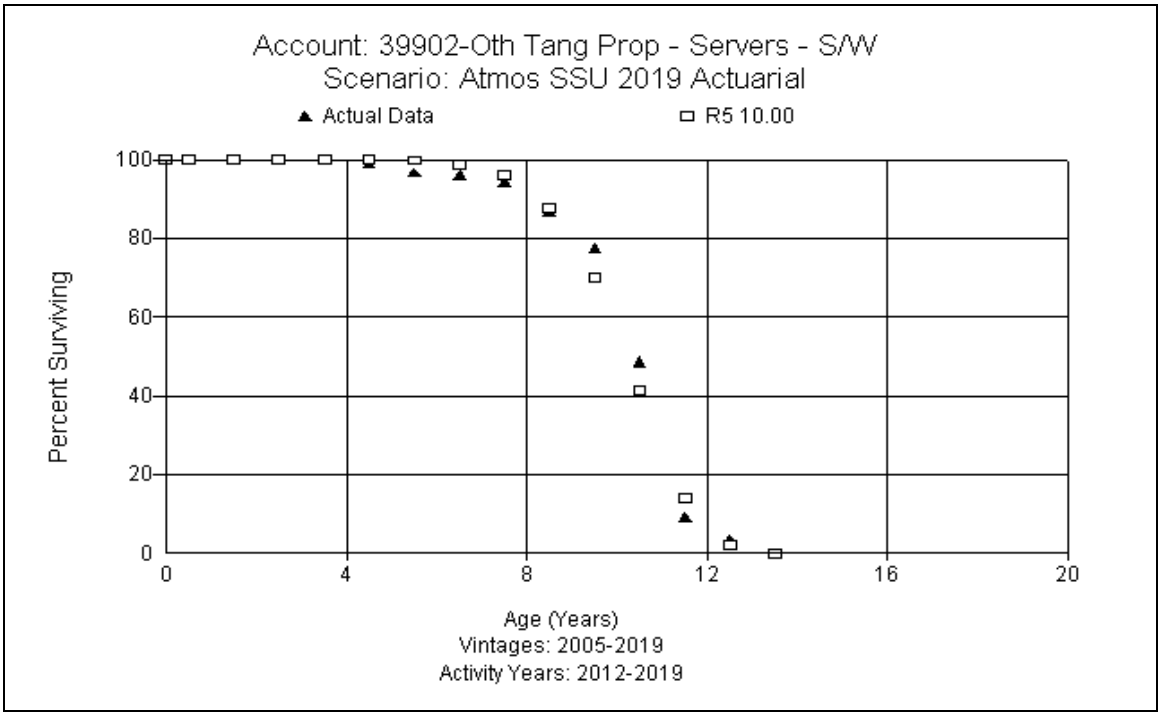
This account consists of assets such as server hardware and equipment used to serve the various locations. The balance is $33.3 million. The current average age of the surviving balance is 4.45 years and the average age at retirement is 8.97 years. Discussions with Company personnel indicated the initial manufacturer warranty is out after 3 years. The Company generally purchases an extended warranty, which carries them a few years longer. The servers running the SAP system are planned for replacement around 8 years on average. The current life analysis indicates a good fit with the 8 R4. Based on the analysis and Company input, this study recommends an 8 R4. A graph of the observed life table and the recommended life and curve are shown below.



Very little salvage or cost of removal has been recorded in the past and no salvage or cost of removal is expected. A zero percent net salvage rate is recommended for this account.

Account 39902 – Servers Software

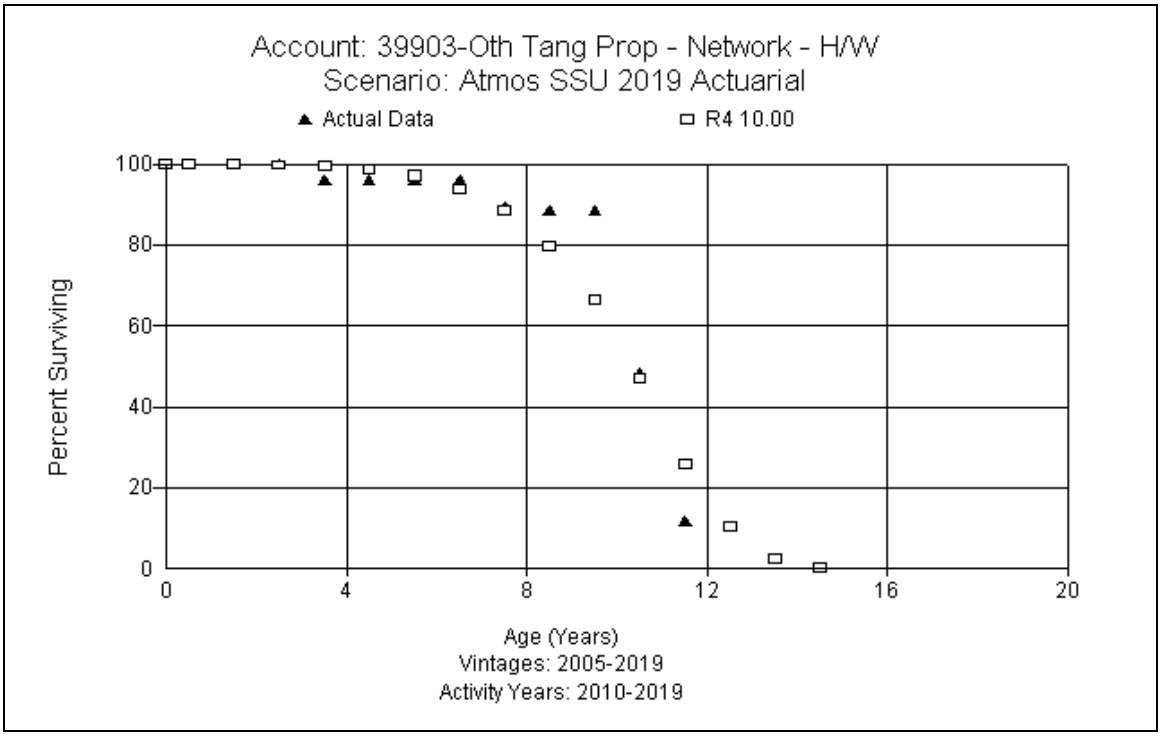
This account consists of assets such as Windows operating systems, Oracle, VMWare, Altiris and other server software. The balance is $12.4 million. The average age of investment is 5.52 years. The average age of retirements is 11.75 years. Discussions with Company personnel indicated that virtualization disconnects the software from the hardware to some degree and can extend the life of the software as compared to the hardware. There are some perpetual licenses within this category. The life analysis provides a consistent 10 year life indication. Even though technology changes are a driver for retirement and replacement, moving the life longer makes sense operationally. This study recommends a 10 year life with the R5 dispersion pattern. A graph of the observed life table and the recommended life and curve are shown below.



No salvage or cost of removal has been recorded and none is expected in the future. A zero percent net salvage rate is recommended for this account.

Account 39903 – Network Hardware

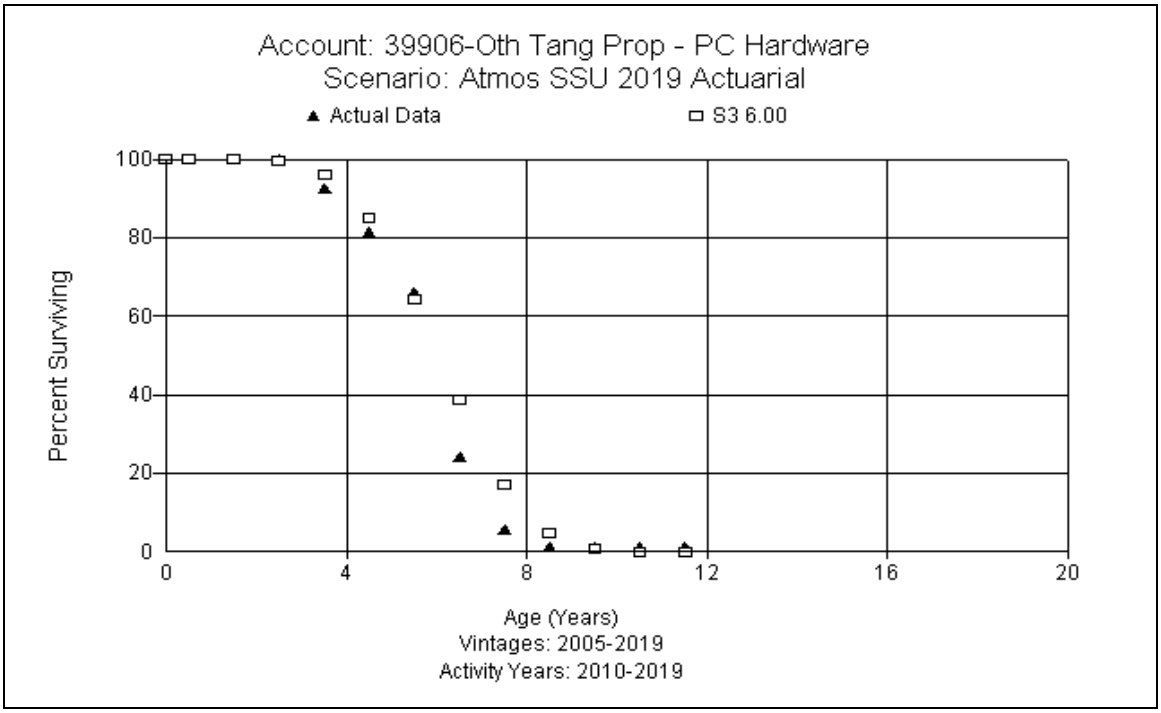
This account consists of assets related to networking activities such as routers, switches and miscellaneous equipment. The balance is $5.4 million. The average age of retirements is 9.82 years and the average age of investment is 6.15 years. Discussions with Company personnel indicated the 2009 investment was for the data center, which has been replaced this year at around 10 years of age. A 10 year life is generally what they experience and expect. The analysis indicates consistent fits at 10 years. This study recommends the 10 R4, which is slightly longer than server hardware. A graph of the observed life table and the recommended life and curve are shown below.



Cost of removal was recorded in 2012, but none since. No salvage or cost of removal is expected in the future. A zero percent net salvage rate is recommended for this account.

Account 39906 – PC Hardware

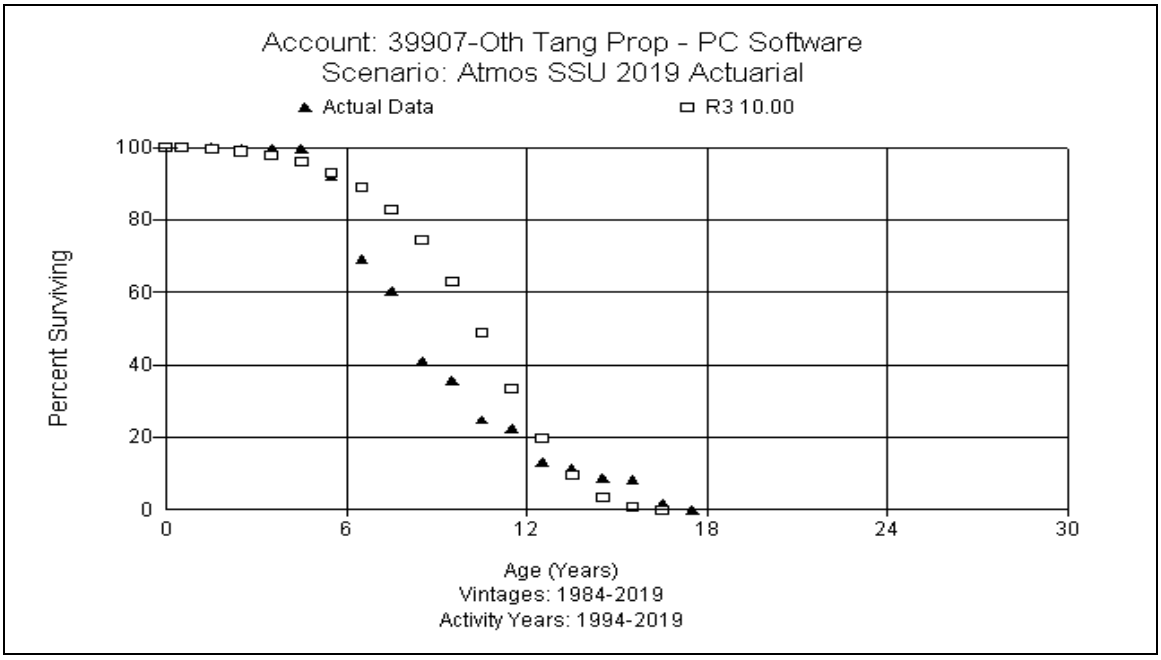
This account consists of costs for computer hardware, desktop and laptop computers, as well as peripherals. The balance is $3.2 million. The average age of investment is 2.93 years and average age of retirements is 7.18 years. Discussions with Company personnel indicated there has been no material change in the replacement policies or practices. There can be delays in retiring some computers due to prep for retiring or being kept as a spare or in inventory. Some peripherals may have a longer life as well. Operationally, a 6 year life is reasonable. The life indications in the actuarial analysis suggest a life between 6-7 years. Based on the life analysis, Company input, and judgment, this study recommends the 6 year life and S3 dispersion. A graph of the observed life table and the recommended life and curve are shown below.



Generally, the Company pays a third party to pick up old PCs but at a nominal cost. Some salvage has been recorded but overall is sporadic and minimal. This study recommends a zero percent net salvage rate for this account.

Account 39907 – PC Software

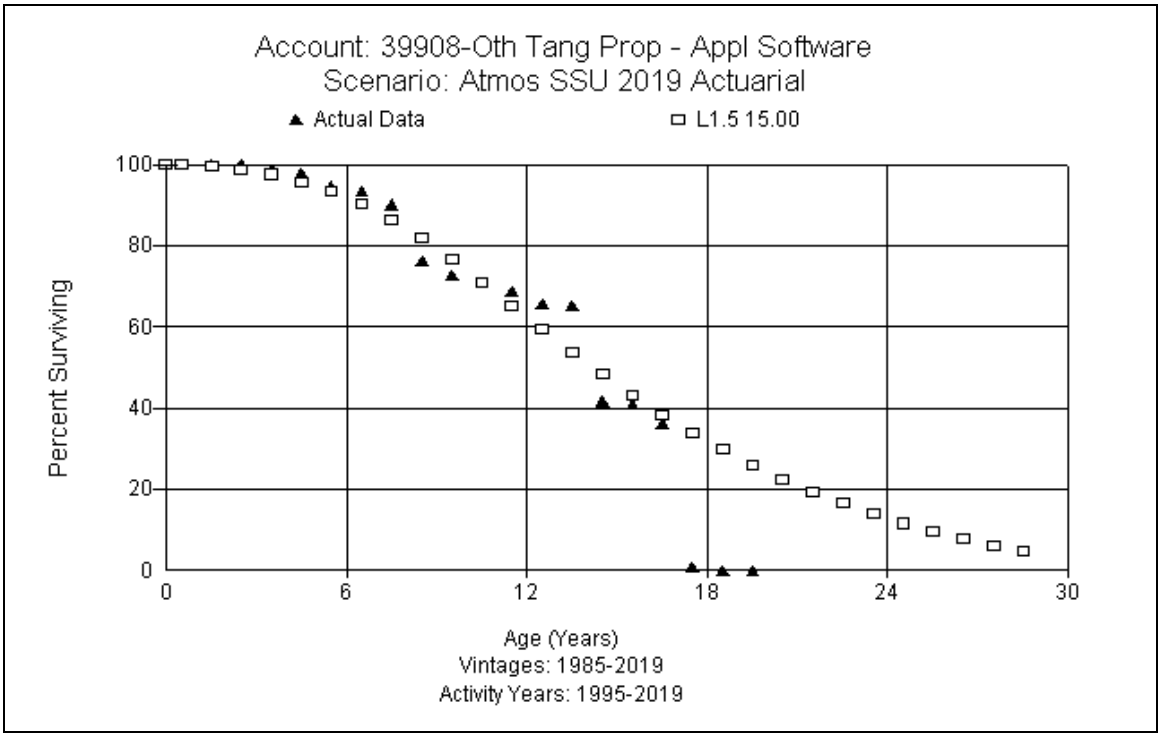
The PC software account consists of costs related to software assets and previously included operating system software. The balance is $1.5 million. The average age of investment is 7.46 years and average age of retirements is 9.12 years. Discussions with Company personnel indicated most software is now included with the hardware at purchase. However, there are numerous other types of software that are purchased and recorded to this account. Over the past 10 years, the Company indicated they had a few "one off" situations, such as the conversion of their contact center PC environment to a virtual desktop infrastructure (VDI) environment, so the recent historical additions and retirements may not reflect the true lifespan. The Company believes a 10 year life is reasonable. The analysis indicates a life between 7-9 years. Based on the analysis, Company input, type of assets, and judgment, this study recommends the 10 R3 dispersion at this time. A graph of the observed life table and the recommended life and curve are shown below.



No salvage or cost of removal has been recorded and none is expected. This study recommends a zero percent net salvage rate for this account.

Account 39908 – Application Software

The applications software account consists of costs related to large software assets including billing system software, electronic mapping and training software applications, Oracle upgrade, Banner, Data Mart System, PowerPlant System, Advantage System application and the Waco Call Center IT build. The balance is $212 million. The prior study dispersion pattern was 15 R5. The average age of the surviving investment is 6.47 years and average age of retirements is 12.44 years. Discussions with Company personnel indicated that their expectation for the major software platforms is that they can last 15 years or more. They will upgrade but not retire the original asset unless they moved to a different platform. Based on the analysis, numerous fits are between 13 to 15 years. Based on all the information and judgment, this study recommends the 15 year average service life with the L1.5 dispersion for this account. A graph of the observed life table and the recommended life and curve are shown below.



Some cost of removal was recorded in 2013 but is none is expected in the future. This study recommends a zero percent net salvage rate for this account.

APPENDIX A - Annual Accrual and Rate

Appendix A

Atmos Energy - Shared Services
Depreciation Study Annual Depreciation Rates and Accruals
At September 30, 2019

Account	Description	Plant Balance 09/30/2019	Annual Accrual Rate	Annual Accrual Amount
(a)	(b)	(c)	(d)	(e)
39000	Structures & Improvements	35,954,767.62	2.38%	857,131.21
39009	Improvements - Leased	12,035,696.09	5.13%	617,786.63
39100	Office Furniture & Equipment	9,098,412.62	6.60%	600,829.24
39200	Transportation Equipment	103,415.63	6.29%	6,507.87
39400	Tools Shop And Garage	606,029.27	13.04%	79,006.99
39500	Laboratory Equipment	23,632.07	9.70%	2,292.22
39700	Communication Equipment	3,269,128.21	6.72%	219,553.72
39800	Miscellaneous Equipmeent	741,799.79	7.24%	53,739.73
39900	Other Tangible Equipment	295,692.36	14.96%	44,240.66
39901	Servers-Hardware	33,275,868.85	13.30%	4,426,644.24
39902	Servers-Software	12,446,587.47	10.63%	1,323,467.74
39903	Network Hardware	5,427,397.84	10.34%	561,162.43
39906	PC Hardware	3,181,360.16	17.92%	570,020.36
39907	PC Software	1,511,356.80	10.75%	162,405.87
39908	Application Software	211,721,688.05	7.55%	15,989,991.28
	Total Depreciable Plant	329,692,832.83	7.74%	25,514,780.17

APPENDIX B - Calculation of Accrual and Rates

Appendix B

Atmos Energy - Shared Services
At September 30, 2019
Calculation of Depreciation Annual Accrual
With Reserve Reallocation

Account	Description	Plant Balance	Allocated Book Reserve	Net Salvage %	Net Salvage Amount	Unaccrued Balance	Remaining Life	Annual Accrual Amount	Accrual Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
39000	Structures & Improvements	$ 35,954,767.62	$ 7,245,549.20	0%	$ -	$ 28,709,218.42	33.49	$ 857,131.21	2.38%
39009	Improvements - Leased	12,035,696.09	8,743,660.22	0%	-	3,292,035.87	5.33	617,786.63	5.13%
39100	Office Furniture & Equipment	9,098,412.62	4,488,607.00	0%	-	4,609,805.62	7.67	600,829.24	6.60%
39200	Transportation Equipment	103,415.63	53,933.77	10%	10,341.56	39,140.29	6.01	6,507.87	6.29%
39400	Tools Shop And Garage	606,029.27	301,752.22	0%	-	304,277.05	3.85	79,006.99	13.04%
39500	Laboratory Equipment	23,632.07	15,790.70	0%	-	7,841.37	3.42	2,292.22	9.70%
39700	Communication Equipment	3,269,128.21	1,869,500.29	0%	-	1,399,627.92	6.37	219,553.72	6.72%
39800	Miscellaneous Equipment	741,799.79	293,625.50	0%	-	448,174.29	8.34	53,739.73	7.24%
39900	Other Tangible Equipment	295,692.36	100,002.35	0%	-	195,690.01	4.42	44,240.66	14.96%
39901	Servers-Hardware	33,275,868.85	17,518,682.46	0%	-	15,757,186.39	3.56	4,426,644.24	13.30%
39902	Servers-Software	12,446,587.47	6,541,118.15	0%	-	5,905,469.32	4.46	1,323,467.74	10.63%
39903	Network Hardware	5,427,397.84	2,954,522.98	0%	-	2,472,874.86	4.41	561,162.43	10.34%
39906	PC Hardware	3,181,360.16	1,489,561.94	0%	-	1,691,798.22	2.97	570,020.36	17.92%
39907	PC Software	1,511,356.80	632,273.09	0%	-	879,083.71	5.41	162,405.87	10.75%
39908	Application Software	211,721,688.05	87,880,219.17	0%	-	123,841,468.88	7.74	15,989,991.28	7.55%
	Total Depreciable Plant	**$ 329,692,832.83**	**$ 140,128,799.05**		**$ 10,341.56**	**$ 189,553,692.22**		**$ 25,514,780.17**	**7.74%**

APPENDIX C - Parameters

Appendix C

Atmos Energy - Shared Services Unit
Proposed Depreciation Parameters
Depreciation Study as of September 30, 2019

		Proposed 2019				
Account	Description	ASL	Curve	Gross Salvage	Cost of Removal	Net Salvage
DIVISION 002 - SSU GENERAL OFFICE AND DIVISION 12 - SSU CUSTOMER SUPPORT						
39000	Structure & Improvements	50	R2	0%	0%	0%
39009	Improvements - Leased	20	R4	0%	0%	0%
39100	Office Furniture & Equipment	16	R4	0%	0%	0%
39200	Transportation Equipment	15	L2	10%	0%	10%
39400	Tools, Shop, & Garage Equipment	8	S6	0%	0%	0%
39500	Laboratory Equipment	10	R2	0%	0%	0%
39700	Communication Equipment	15	R2	0%	0%	0%
39800	Miscellaneous Equipment	15	S3	0%	0%	0%
39900	Other Tangible Equipment	7	R5	0%	0%	0%
39901	Servers-Hardware	8	R4	0%	0%	0%
39902	Servers-Software	10	R5	0%	0%	0%
39903	Network Hardware	10	R4	0%	0%	0%
39906	Pc Hardware	6	S3	0%	0%	0%
39907	Pc Software	10	R3	0%	0%	0%
39908	Application Software	15	L1.5	0%	0%	0%

APPENDIX D - Net Salvage Analysis

Appendix D

ATMOS ENERGY - SHARED SERVICES UNIT
Depreciation Study as of September 30, 2019
Net Salvage Analysis

Account and Description		Activity Year	Retirement	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
39000-Structures & Improvements		2007	0	-	-	0	NA									
	39000	2008	0	-	-	0	NA	NA								
	39000	2009	0	-	-	0	NA	NA	NA							
	39000	2010	0	-	-	0	NA	NA	NA	NA						
	39000	2011	0	-	-	0	NA	NA	NA	NA	NA					
	39000	2012	0	-	-	0	NA	NA	NA	NA	NA	NA				
	39000	2013	0	-	-	0	NA	NA	NA	NA	NA	NA	NA			
	39000	2014	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA		
	39000	2015	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	39000	2016	32,330	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39000	2017	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39000	2018	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39000	2019	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39009-Improv. to Leased Premises		2000	270,911	-	-	0	0.0%									
	39009	2001	0	-	-	0	NA	0.0%								
	39009	2002	0	-	-	0	NA	NA	0.0%							
	39009	2003	0	-	-	0	NA	NA	NA	0.0%						
	39009	2004	0	-	-	0	NA	NA	NA	NA	0.0%					
	39009	2005	0	-	-	0	NA	NA	NA	NA	NA	0.00%				
	39009	2006	178,757	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%			
	39009	2007	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%		
	39009	2008	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	
	39009	2009	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39009	2010	0	-	-	0	NA	NA	NA	NA	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39009	2011	0	-	-	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
	39009	2012	35,417	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39009	2013	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39009	2014	126,214	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39009	2015	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39009	2016	1,473,692	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39009	2017	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39009	2018	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39009	2019	437,956	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39100-Office Furniture & Equipment		1993	83,992	200	-	200	0.2%									
	39100	1994	7,848	-	-	0	0.0%	0.2%								
	39100	1995	852	-	-	0	0.0%	0.0%	0.2%							
	39100	1996	92,361	-	-	0	0.0%	0.0%	0.0%	0.1%						
	39100	1997	0	-	(5,108)	5,108	NA	5.5%	5.5%	5.1%	2.9%					
	39100	1998	6,852	-	-	0	0.0%	74.5%	5.1%	5.1%	4.7%	2.77%				
	39100	1999	0	-	-	0	NA	0.0%	74.5%	5.1%	5.1%	4.73%	2.77%			

ATMOS ENERGY - SHARED SERVICES UNIT
Depreciation Study as of September 30, 2019
Net Salvage Analysis

Account and Description		Activity Year	Retirement	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
	39100	2000	0	-	-	0	NA	NA	0.0%	74.5%	5.1%	5.10%	4.73%	2.77%		
	39100	2001	0	-	-	0	NA	NA	NA	0.0%	74.5%	5.15%	5.10%	4.73%	2.77%	
	39100	2002	0	-	-	0	NA	NA	NA	NA	0.0%	74.55%	5.15%	5.10%	4.73%	2.77%
	39100	2003	0	-	-	0	NA	NA	NA	NA	NA	0.00%	74.55%	5.15%	5.10%	4.73%
	39100	2004	0	-	-	0	NA	NA	NA	NA	NA	NA	0.00%	74.55%	5.15%	5.10%
	39100	2005	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	0.00%	74.55%	5.15%
	39100	2006	1,420,965	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.36%
	39100	2007	462,906	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2008	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2009	225,893	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2010	169,286	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2011	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2012	788,808	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2013	1,602,991	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2014	1,163	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2015	358,930	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2016	1,020,915	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2017	4,530,386	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2018	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39100	2019	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39200-Transportation Equipment		2007	18,885	-	-	0	0.0%									
	39200	2008	0	-	-	0	NA	0.0%								
	39200	2009	0	-	-	0	NA	NA	0.0%							
	39200	2010	0	-	-	0	NA	NA	NA	0.0%						
	39200	2011	0	-	-	0	NA	NA	NA	NA	0.0%					
	39200	2012	0	-	-	0	NA	NA	NA	NA	NA	0.00%				
	39200	2013	0	-	-	0	NA	NA	NA	NA	NA	NA	0.00%			
	39200	2014	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	0.00%		
	39200	2015	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	0.00%	
	39200	2016	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00%
	39200	2017	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	39200	2018	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	39200	2019	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
39300-Stores Equipment		2007	0	-	-	0	NA									
	39300	2008	0	-	-	0	NA	NA								
	39300	2009	0	-	-	0	NA	NA	NA							
	39300	2010	0	-	-	0	NA	NA	NA	NA						
	39300	2011	0	-	-	0	NA	NA	NA	NA	NA					
	39300	2012	0	-	-	0	NA	NA	NA	NA	NA	NA				
	39300	2013	0	-	-	0	NA	NA	NA	NA	NA	NA	NA			
	39300	2014	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA		

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	39300	2015	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	39300	2016	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	39300	2017	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	39300	2018	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	39300	2019	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
39400-Tools, Shop, & Garage Equip.		2007	7,683	-	-	0	0.0%									
	39400	2008	0	-	-	0	NA	0.0%								
	39400	2009	0	-	-	0	NA	NA	0.0%							
	39400	2010	0	-	-	0	NA	NA	NA	0.0%						
	39400	2011	0	-	-	0	NA	NA	NA	NA	0.0%					
	39400	2012	0	-	-	0	NA	NA	NA	NA	NA	0.00%				
	39400	2013	0	-	-	0	NA	NA	NA	NA	NA	NA	0.00%			
	39400	2014	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	0.00%		
	39400	2015	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	0.00%	
	39400	2016	28	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39400	2017	123,340	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39400	2018	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39400	2019	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39500-Laboratory Equipment		2007	0	-	-	0	NA									
	39500	2008	0	-	-	0	NA	NA								
	39500	2009	0	-	-	0	NA	NA	NA							
	39500	2010	0	-	-	0	NA	NA	NA	NA						
	39500	2011	0	-	-	0	NA	NA	NA	NA	NA					
	39500	2012	0	-	-	0	NA	NA	NA	NA	NA	NA				
	39500	2013	0	-	-	0	NA	NA	NA	NA	NA	NA	NA			
	39500	2014	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA		
	39500	2015	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	39500	2016	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	39500	2017	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	39500	2018	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	39500	2019	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
39700-Communication Equipment		1993	8,091	-	-	0	0.0%									
	39700	1994	0	-	-	0	NA	0.0%								
	39700	1995	0	-	-	0	NA	NA	0.0%							
	39700	1996	0	-	-	0	NA	NA	NA	0.0%						
	39700	1997	0	-	-	0	NA	NA	NA	NA	0.0%					
	39700	1998	0	-	-	0	NA	NA	NA	NA	NA	0.00%				
	39700	1999	0	-	-	0	NA	NA	NA	NA	NA	NA	0.00%			
	39700	2000	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	0.00%		

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	39700	2001	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	0.00%	
	39700	2002	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00%
	39700	2003	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	39700	2004	34,015	26,609	3,107	23,502	69.1%	69.1%	69.1%	69.1%	69.1%	69.09%	69.09%	69.09%	69.09%	69.09%
	39700	2005	0	-	-	0	NA	69.1%	69.1%	69.1%	69.1%	69.09%	69.09%	69.09%	69.09%	69.09%
	39700	2006	792,568	-	-	0	0.0%	0.0%	2.8%	2.8%	2.8%	2.84%	2.84%	2.84%	2.84%	2.84%
	39700	2007	0	-	-	0	NA	0.0%	0.0%	2.8%	2.8%	2.84%	2.84%	2.84%	2.84%	2.84%
	39700	2008	16,530	-	-	0	0.0%	0.0%	0.0%	0.0%	2.8%	2.79%	2.79%	2.79%	2.79%	2.79%
	39700	2009	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	2.79%	2.79%	2.79%	2.79%	2.79%
	39700	2010	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	2.79%	2.79%	2.79%	2.79%
	39700	2011	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	2.79%	2.79%	2.79%
	39700	2012	24,247,440	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.09%	0.09%
	39700	2013	118,856	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.09%
	39700	2014	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39700	2015	34,412				0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39700	2016	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39700	2017	1,440,196	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39700	2018	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39700	2019	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39800-Miscellaneous Equipment		1996	149,090	9,000	-	9,000	6.0%									
	39800	1997	0	-	-	0	NA	6.0%								
	39800	1998	0	-	-	0	NA	NA	6.0%							
	39800	1999	0	-	-	0	NA	NA	NA	6.0%						
	39800	2000	0	-	-	0	NA	NA	NA	NA	6.0%					
	39800	2001	0	-	-	0	NA	NA	NA	NA	NA	6.04%				
	39800	2002	0	-	-	0	NA	NA	NA	NA	NA	NA	6.04%			
	39800	2003	56,637	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	4.37%		
	39800	2004	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	4.37%	
	39800	2005	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	4.37%
	39800	2006	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2007	0	-	-	0	NA	NA	NA	NA	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2008	419,274	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2009	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2010	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2011	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2012	25,971	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2013	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2014	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2015	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2016	190,238	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2017	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2018	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39800	2019	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%

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39900-Other Tangible Property		1994	219,471	-	-	0	0.0%									
39910-CKV-Other Tangible Property		1995	0	-	-	0	NA	0.0%								
39918-CKV-Other Tangible Property		1996	0	-	-	0	NA	NA	0.0%							
39924-Other Tangible Property General		1997	0	-	-	0	NA	NA	NA	0.0%						
	39900	1998	0	-	-	0	NA	NA	NA	NA	0.0%					
	39900	1999	0	-	-	0	NA	NA	NA	NA	NA	0.00%				
	39900	2000	0	-	-	0	NA	NA	NA	NA	NA	NA	0.00%			
	39900	2001	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	0.00%		
	39900	2002	8,143	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	
	39900	2003	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2004	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2005	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2006	0	-	-	0	NA	NA	NA	NA	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2007	0	-	-	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2008	224,866	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2009	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2010	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2011	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2011	0	-	-	0	NA	NA	NA	NA	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2012	0	-	-	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2013	23,172,326	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2014	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2015	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2016	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2017	0	-	-	0	NA	NA	NA	NA	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2018	649,727	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39900	2019	252,609	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39901-Oth Tang Prop - Servers - H/W		2007	0	-	-	0	NA									
39921-OthTang Prop-Servers-H/W-AEAM		2008	0	-	-	0	NA	NA								
	39901	2009	0	-	-	0	NA	NA	NA							
	39901	2010	0	-	-	0	NA	NA	NA	NA						
	39901	2011	0	-	-	0	NA	NA	NA	NA	NA					
	39901	2012	10,873,205	-	(129)	129	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%				
	39901	2013	3,585,984	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%			
	39901	2014	452,050	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%		
	39901	2015	8,526,616	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	
	39901	2016	458,171	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39901	2017	1,469,953	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39901	2018	19,665,278	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39901	2019	106,175	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%

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39902-Oth Tang Prop - Servers - S/W	2007	0	-	-	0	NA									
39922-OthTang Prop-Servers-S/W-AEAM	2008	0	-	-	0	NA	NA								
39902	2009	0	-	-	0	NA	NA	NA							
39902	2010	0	-	-	0	NA	NA	NA	NA						
39902	2011	0	-	-	0	NA	NA	NA	NA	NA					
39902	2012	6,624,796	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%				
39902	2013	1,467,368	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%			
39902	2014	497,701	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%		
39902	2015	226,110	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	
39902	2016	163,043	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39902	2017	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39902	2018	1,066,305	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39902	2019	10,688,604	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39903-Oth Tang Prop - Network - H/W	2006	11,472	-	-	0	0.0%									
39923-OthTang Prop-Network-H/W-AEAM	2007	0	-	-	0	NA	0.0%								
39903	2008	0	-	-	0	NA	NA	0.0%							
39903	2009	0	-	-	0	NA	NA	NA	0.0%						
39903	2010	0	-	-	0	NA	NA	NA	NA	0.0%					
39903	2011	0	-	-	0	NA	NA	NA	NA	NA	0.00%				
39903	2012	886,044	-	1,278	(1,278)	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.14%	-0.14%			
39903	2013	110,059	-	-	0	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.13%	-0.13%	-0.13%		
39903	2014	237,149	-	-	0	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.10%	-0.10%	-0.10%	-0.10%	
39903	2015	1,348,505	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	-0.05%	-0.05%	-0.05%	-0.05%	-0.05%
39903	2016	33,700	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	-0.05%	-0.05%	-0.05%	-0.05%	-0.05%
39903	2017	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	-0.05%	-0.05%	-0.05%	-0.05%	-0.05%
39903	2018	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	-0.05%	-0.05%	-0.05%	-0.05%
39903	2019	192,678	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	-0.05%	-0.05%	-0.05%
39904-Oth Tang Prop - Mainframe - CPU	2007	0	-	-	0	NA									
39904	2008	0	-	-	0	NA	NA								
39904	2009	0	-	-	0	NA	NA	NA							
39904	2010	0	-	-	0	NA	NA	NA	NA						
39904	2011	0	-	-	0	NA	NA	NA	NA	NA					
39904	2012	1,095,465	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%				
39904	2013	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%			
39904	2014	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%		
39904	2015	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	
39904	2016	0	-	-	0	NA	NA	NA	NA	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39904	2017	0	-	-	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
39904	2018	0	-	-	0	NA	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%
39904	2019	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%

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39905-Oth Tang Prop - Mainframe - H/W		2007	0	-	-	0	NA									
	39905	2008	0	-	-	0	NA	NA								
	39905	2009	0	-	-	0	NA	NA	NA							
	39905	2010	0	-	-	0	NA	NA	NA	NA						
	39905	2011	0	-	-	0	NA	NA	NA	NA	NA					
	39905	2012	1,159,964	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%				
	39905	2013	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%			
	39905	2014	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%		
	39905	2015	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	
	39905	2016	0	-	-	0	NA	NA	NA	NA	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39905	2017	0	-	-	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
	39905	2018	0	-	-	0	NA	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%
	39905	2019	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%
39906-Oth Tang Prop - PC Hardware		1994	97,832	-	-	0	0.0%									
39916-CKV-Oth Tang Prop-PC Hardware		1995	0	-	-	0	NA	0.0%								
	39906	1996	116,913	-	-	0	0.0%	0.0%	0.0%							
	39906	1997	0	-	-	0	NA	0.0%	0.0%	0.0%						
	39906	1998	0	-	-	0	NA	NA	0.0%	0.0%	0.0%					
	39906	1999	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%				
	39906	2000	2,832	3,000	45	2,955	104.3%	104.3%	104.3%	104.3%	2.5%	2.47%	1.36%			
	39906	2001	0	-	-	0	NA	104.3%	104.3%	104.3%	104.3%	2.47%	2.47%	1.36%		
	39906	2002	6,189,732	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.05%	0.05%	0.05%	0.05%	
	39906	2003	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.05%	0.05%	0.05%	0.05%	0.05%
	39906	2004	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.05%	0.05%	0.05%	0.05%	0.05%
	39906	2005	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.05%	0.05%	0.05%	0.05%	0.05%
	39906	2006	2,632,955	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.03%	0.03%	0.03%	0.03%
	39906	2007	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.03%	0.03%	0.03%
	39906	2008	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.03%	0.03%
	39906	2009	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.03%
	39906	2010	0	-	-	0	NA	NA	NA	NA	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39906	2011	0	-	-	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
	39906	2011	2,825,516	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39906	2012	4,649,967	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39906	2013	217,744	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39906	2014	162,562	250	-	250	0.2%	0.1%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39906	2015	1,660,308	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39906	2016	696,097	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39906	2017	18,020	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39906	2018	1,738,169	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.01%	0.00%	0.00%	0.00%	0.00%
	39906	2019	148,508	3,272	-	3,272	2.2%	0.2%	0.2%	0.1%	0.1%	0.08%	0.08%	0.04%	0.03%	0.03%

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39907-Oth Tang Prop - PC Software		1994	38,759	-	-	0	0.0%									
39917-CKV-Oth Tang Prop-PC Software		1995	0	-	-	0	NA	0.0%								
	39907	1996	0	-	-	0	NA	NA	0.0%							
	39907	1997	0	-	-	0	NA	NA	NA	0.0%						
	39907	1998	0	-	-	0	NA	NA	NA	NA	0.0%					
	39907	1999	0	-	-	0	NA	NA	NA	NA	NA	0.00%				
	39907	2000	0	-	-	0	NA	NA	NA	NA	NA	NA	0.00%			
	39907	2001	0	-	-	0	NA	NA	NA	NA	NA	NA	NA	0.00%		
	39907	2002	861,539	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	
	39907	2003	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2004	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2005	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2006	16,495	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2007	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2008	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2009	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2010	0	-	-	0	NA	NA	NA	NA	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2011	0	-	-	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2011	0	-	-	0	NA	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%
	39907	2012	2,918,743	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2013	366,151	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2014	599,561	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2015	864,238	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2016	143,271	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2017	132,181	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2018	294,805	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39907	2019	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39908-Oth Tang Prop - Appl Software		1995	5,256	-	-	0	0.0%									
39928-Oth Tang Prop-Appl SW-AEAM		1996	0	-	-	0	NA	0.0%								
	39908	1997	0	-	-	0	NA	NA	0.0%							
	39908	1998	0	-	-	0	NA	NA	NA	0.0%						
	39908	1999	0	-	-	0	NA	NA	NA	NA	0.0%					
	39908	2000	8,032,596	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%				
	39908	2001	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%			
	39908	2002	9,573,067	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%		
	39908	2003	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	
	39908	2004	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2005	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2006	731,136	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2007	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2008	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2009	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%

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	39908	2010	0	-	-	0	NA	NA	NA	NA	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2011	0	-	-	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2011	0	-	-	0	NA	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%
	39908	2012	2,603,072	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2013	60,097,599	-	206	(206)	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2014	(68,545)	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2015	4,526,869	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2016	53,544,165	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2017	4,718,848	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2018	205,742	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39908	2019	4,963,406	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
39909-Oth Tang Prop - Mainframe S/W		2007	0	-	-	0	NA									
	39909	2008	0	-	-	0	NA	NA								
	39909	2009	0	-	-	0	NA	NA	NA							
	39909	2010	0	-	-	0	NA	NA	NA	NA						
	39909	2011	0	-	-	0	NA	NA	NA	NA	NA					
	39909	2012	0	-	-	0	NA	NA	NA	NA	NA	NA				
	39909	2013	0	-	-	0	NA	NA	NA	NA	NA	NA	NA			
	39909	2014	1,604,387	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%		
	39909	2015	27,582	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	
	39909	2016	0	-	-	0	NA	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39909	2017	0	-	-	0	NA	NA	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39909	2018	0	-	-	0	NA	NA	NA	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%
	39909	2019	39,252	-	-	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%